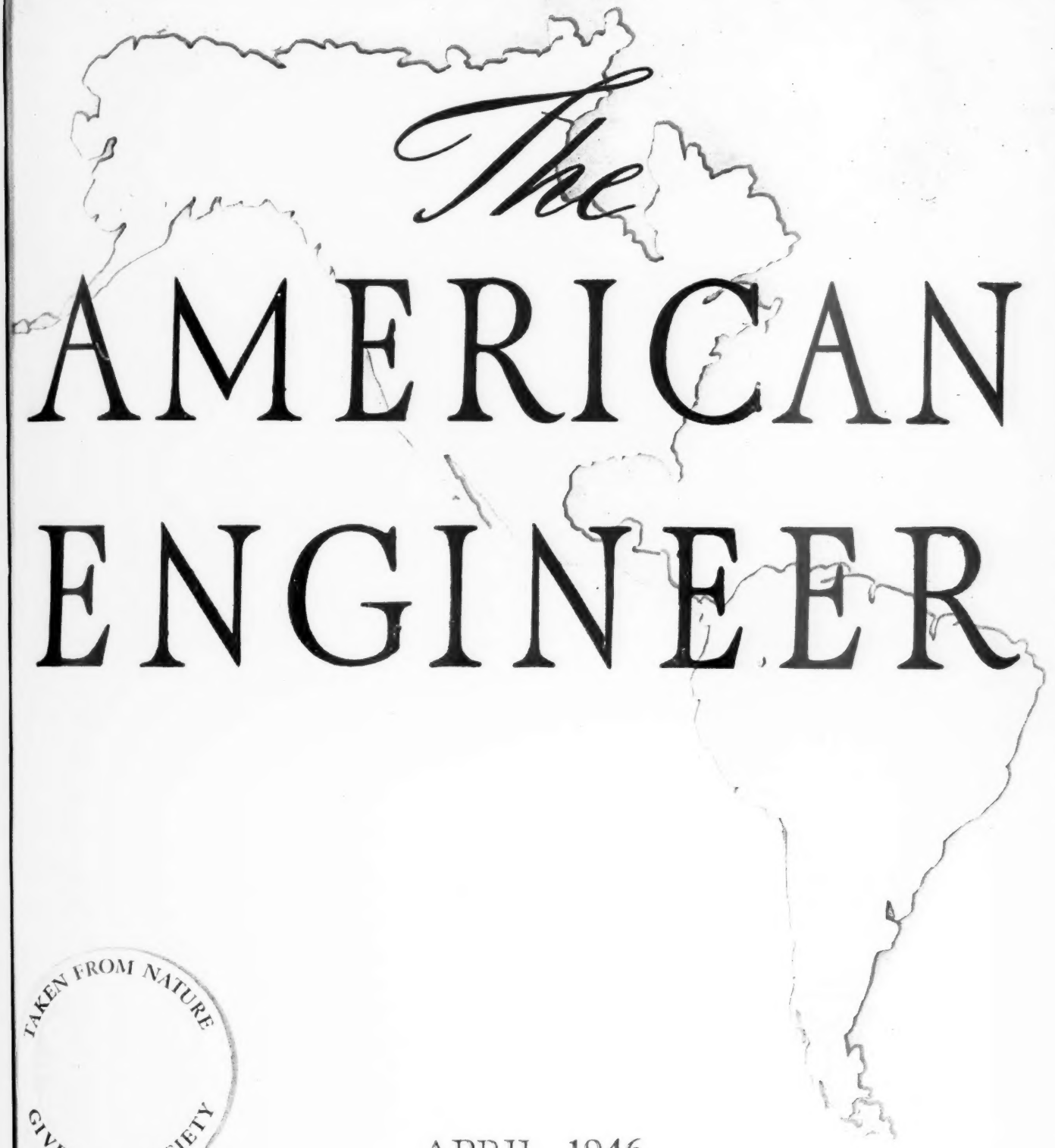
HE · NATIONAL · SOCIETY · OF · PROFESSIONAL · ENGINEERS ·

ENGINEERING
LIBRARY



The AMERICAN ENGINEER

TAKEN FROM NATURE
GIVEN TO SOCIETY

APRIL, 1946

Will you swim or drift with the Reconversion Tide?

Periods of great prosperity followed the Civil War, the Spanish American War and World War I. It is obvious that a great tide of growth and expansion is occurring now. The question is: Will you *swim* or drift with that tide?

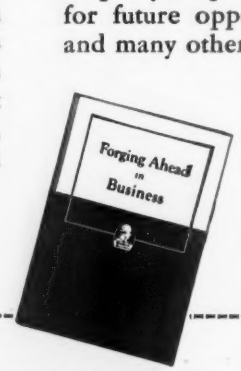
The answer is up to you. During these years, rich rewards await those who are resolved to forge ahead in business or industry. There will be exceptional opportunities for ambitious men. *Qualified* men will be in great demand. Right NOW, in fact, there are more high-salaried positions available than there are men capable of filling them!

But you cannot hope to fill such an executive position until you have a working knowledge of the fundamentals underlying *all* business and industry. It is not enough to be an expert in one. The executive who supervises other men, who guides a business on its course, must have *broad* knowledge. He must have mastered the principles of Accounting, Production, Finance and Marketing in all their phases.

During the past 36 years, thousands of ambitious men have obtained this essential training through the Alexander Hamilton Institute's Modern Business Course and Service. The program, designed by practical business men, is basic, thorough and scientific. Among the prominent contributors to this course are such men as: Thomas J. Watson, President, International Business Machines Corp.; Herman W. Steinkraus, President, Bridgeport Brass Co., and Clifton Slusser, Vice President, Goodyear Tire & Rubber Co.

"FORGING AHEAD IN BUSINESS" . . . FREE!

Who are all the distinguished men behind the Institute? How is the Course and Service brought to subscribers in convenient, time-saving form? How can it give you immediate help in your present job while preparing you for future opportunities? These questions, and many others, are answered in the Institute's FREE 64-page booklet, "Forging Ahead in Business." A copy is yours for the asking. Send for it today. Use the coupon!



ALEXANDER HAMILTON INSTITUTE

ALEXANDER HAMILTON INSTITUTE
Dept. AE, 71 West 23rd St., New York 10, N. Y.
In Canada:
54 Wellington Street, West, Toronto 1, Ont.

Please mail me, without cost, a copy of the 64-page book—"FORGING AHEAD IN BUSINESS."

Name .....

Firm Name .....

Business Address .....

Position .....

Home Address .....

THE AMERICAN ENGINEER

Published monthly in the interest of the Engineering Profession by the National Society of Professional Engineers.

VOLUME 16, NUMBER 4

APRIL, 1946

ROBERT L. MOFFETT, *Editor*
All editorial material should be sent to the Washington Office.

* * *

Business Manager
LEO H. CLEARY

Publication Committee
WILLIAM H. LARKIN, *Chairman*
ALONZO L. JONES
ALLEN HUBBARD

* * *

Advertising and Business Offices
6 Church Street
New York 6, N. Y.

All correspondence relating to Society membership, subscriptions, etc., should be addressed to the Washington office.

* * *

Neither the American Engineer nor the National Society of Professional Engineers assumes any responsibility for statements or opinions expressed by contributors whose names identify the source of same.
Copyright — 1945 — The National Society of Professional Engineers.
* * *

Subscription Rates

$1.00 per year in advance to members of the National Society of Professional Engineering and its Affiliated Societies. $2.00 per year in advance to non-members in U.S.A. and its possessions and Canada and Mexico. Single copy — 25c. Foreign, $4.00 per year.

* * *

Change of address on Form 3578 should be sent to the National Society of Professional Engineers, National Press Building, Washington, D. C.

* * *

Reentered as second class matter, March 11, 1942, at the Post Office in New York, under the Act of March 3, 1879.

In This Issue —

Page

PROFESSIONAL ORGANIZATION OF ENGINEERS, By William F. Ryan 2

IT'S YOUR PROFESSION—SO, By Randolph W. Mallick.... 9

NATIONAL ISSUES—WASHINGTON ECONOMIC AND POLITICAL FRONT 10

ANALYSIS OF THE PENNSYLVANIA STATE ENGINEERS' REGISTRATION ACT, By Ray M. Fuller..... 12

WHAT IS A PROFESSION?, By Harry E. Nold..... 15

LETTERS FROM READERS 17

EDITORIAL PAGES 18

DIRECTORY OF STATE SOCIETY OFFICERS..... 20

NATIONAL AND STATE SOCIETY NEWS..... 21

THE EMERGENCY FUND 26

WHAT'S NEW? 27

THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
Headquarters: National Press Building, Washington, D. C.

Vice-President
JAS. F. FAIRMAN
4 Irving Place
New York, N. Y.

President
RITCHIE LAWRIE, JR.
321 North Front St.
Harrisburg, Pennsylvania

Vice-President
STEPHEN C. HALE
170 Boulevard, S.E.
Atlanta, Georgia

Vice-President
ALEX VAN PRAAG, JR.
447 Standard Office Bldg.
Decatur, Illinois

Treasurer
LEO H. CLEARY
2726 Conn. Ave., N. W.
Wash., D. C.

Vice-President
WILLIAM L. THRAILKILL
1107 W. 7th Avenue
Spokane, Washington

Professional Organization of Engineers

By William F. Ryan

President of the Massachusetts Society of Professional Enginners

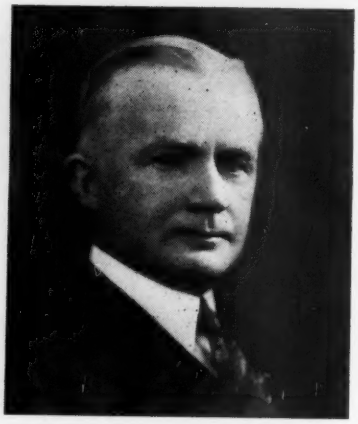
For thirty years I have been listening to addresses and reading articles about the "professional status" of the engineer. The authors seem to agree on one point, viz., that his professional status is deplorable. It is not like the weather, however, about which everybody complains, but nobody does anything about; scores of able and earnest engineers have devoted years of patient effort to create a professional consciousness among engineers and to raise them in public esteem. Nevertheless, I am not aware that our professional status has made notable progress in my lifetime.

The difficulty, I fear, arises from the fact that professional status is a matter to which the vast majority of engineers are profoundly indifferent. I must confess that I have not always regarded the question too seriously myself. On the other hand, I have always been concerned about the low estate of the engineer, and therefore I have served on committees and contributed otherwise to movements designed to promote professional recognition. I have felt concern that engineers have so little vision and that they do not see that the very practical *problems of remuneration and continuity of employment are directly related to the public esteem* which they profess to despise.

It's Time For Action

I say I have felt concern. Recently my concern has given away to alarm. I have grave fear that if we do not establish ourselves in our own minds and in the public mind as professional men, some other group will establish that we are something else. If we are not professional men, what are we? There are energetic, forceful and well financed people at our gates who are perfectly willing to answer that question.

My fears really should have dated from a dinner 15 years ago, when Matthew Wohl, of the A.F of L., told a group of Harvard engineers "The trouble with you engineers is that you fancy yourselves as professional men. Actually, you are just hired help." I laughed that night; I can not laugh about it today. The majority of engineers are not employers. Most of us are not definitely a part of management. There is only one alternative then to classification as professional men. It is classification in the ranks of labor. "Technical labor" perhaps or "white collar labor", but labor, nevertheless. I believe that no engineer, however indifferent to professional status in the past, is willing to accept the latter classification.



William F. Ryan

William F. Ryan, Assistant Engineering Manager, Stone & Webster Engineering Corporation, Boston, was born in Woodbury, Connecticut, May 18, 1889. He was educated in the public schools of Everett, Massachusetts, and at Harvard University receiving the AB degree in 1911 and the MME degree in 1913. After five years in the motive power department of Interborough Rapid Transit Company in New York about equally divided between steam power plant construction and operation, he became Chief Power Plant Engineer for the Wright Martin Aircraft Corporation, New Brunswick, New Jersey. For five years he was Mechanical Engineer of the Harry M. Hope Engineering Corporation of Boston on the design and operation of steam power plants. From 1924 to 1929 he was Power Engineer and Mechanical Engineer of the Allied Chemical & Dye Corporation's subsidiaries, The Solvay Process Corporation and Atmospheric Nitrogen Corporation at Syracuse, New York. At Syracuse he designed the country's pioneer high pressure industrial power plant and was responsible for the mechanical design of the great nitrogen fixation plant at Hopewell, Virginia. Since 1929 he has been with Stone & Webster Engineering Corporation devoting his time chiefly to fields of steam power generation and chemical plant design, particularly chemical plants involving utilization of high pressure and high temperature. He is a fellow of the A.S.M.E., First Vice President of Harvard Engineering Society and President of the Massachusetts Society of Professional Engineers.

It is incumbent upon us to establish ourselves as professional men in our own minds before we attempt to achieve this status in the minds of the public and the politicians, as well as in the minds of employers and nonprofessional employees. Such recognition can be obtained only when we ourselves have developed a keen consciousness of the prerogatives and responsibilities that professional standing implies.

Organization Should Be A "Natural" For Engineers

When engineers have convinced themselves of the urgency of this problem their first thought will be of organization. That is always an engineer's first thought. Assigned to an engineering project, he immediately undertakes to organize his data, to organize his man power for design, for procurement, for construction, to organize the flow of materials, in short, to organize everything needful to achieve desired results. No one appreciates more keenly than engineers the futility of unorganized or badly organized effort. They also know the value of specialization, and that one must organize differently for different ends. The engineer will recognize, when he undertakes to organize for his own interests, that he will have to organize definitely for that purpose, and not as a side line to improving his technique in the design of bridges or gas turbines.

For technical purposes, we are certainly organized, perhaps overorganized, but as a profession our organization is weird and ludicrous. I am convinced that the professional status of the engineer will never be firmly established until engineers become organized *as a profession.* To illustrate what I mean, let us look at a profession that *is* organized as a profession. Figure 1 shows the organization of the medical profession in the United States, with particular reference to Boston.

Organizations of Medical Men

Every doctor of the slightest professional pretentions belongs to the

American Medical Association. A doctor in Boston or its suburbs belongs to the Suffolk District Medical Society or to one of the three District Societies in Middlesex County. The local Society is what he joins and where he votes; membership in the State and National Society follows automatically. There are eighteen of these District Societies in Massachusetts, each of which is a relatively small local group, interested in common problems, and united to work together for the benefit of the public in their community and incidentally for the benefit of themselves as professional men. These several District Societies form the Massachusetts Medical Society.

Similar District Societies in the 47 other states, all the territories and the District of Columbia combine with the Massachusetts Medical Society and with representatives of the Medical Corps of the Army, Navy and Public Health Service, to form the American Medical Association. Every doctor is united with every other doctor to maintain his professional interests in his own locality, in his state and in the nation.

The delegates who govern the American Medical Association are elected, in numbers proportional to their membership, by the state societies, and delegates are also appointed by the Medical Corps of the Army, the Navy and the Public Health Service. The Association operates effectively through a Board of Trustees, several Bureaus and numerous Councils and Committees. Their avowed object is to protect the public in anything and everything that has a medical aspect, to oppose unwise legislation, to expose false remedies, to promote health habits, to spread medical knowledge and to establish standards of medical ethics. So far as I know, no other medical group concerns itself with such problems. This Association is organized for such purposes, and while some doctors join one society and some another for technical purposes, they all join this one, and leave to it, and to it alone, their professional and economic problems.

In this Association, they speak with one voice; they represent a united profession. This does not mean that doctors do not disagree within their own councils, but when they have reached a decision as to what is or is not in the public interest or the interest of their profession, then they present a united front. Incidental to a genuine and invaluable public service, all the more effective because of fundamentally unselfish objectives, they protect all doctors, individually and collectively, from any attack on their professional prerogatives, whether by Government, industrial or financial groups, or by individuals.

Professional Vs Technical Organization

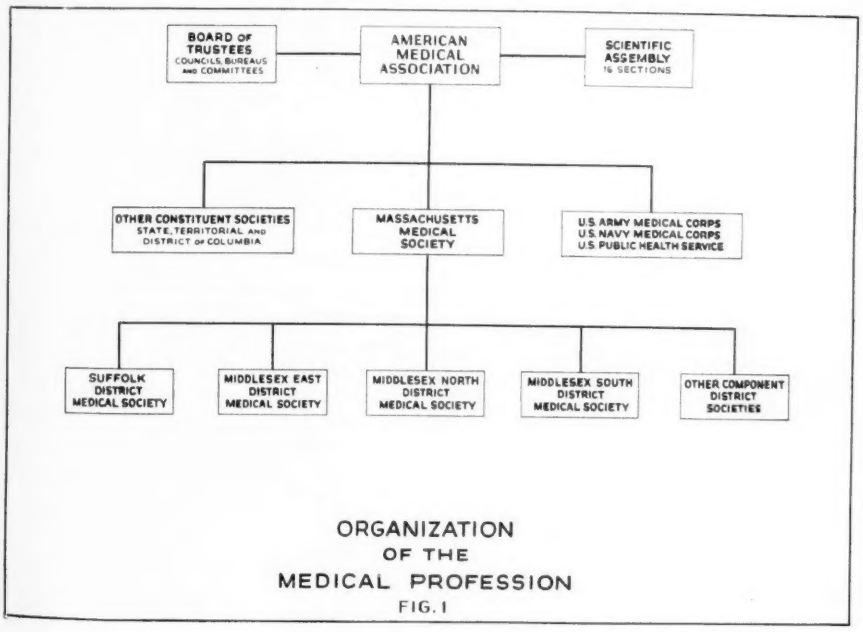
Bear in mind particularly that this is their professional organization, not their technical organization; although the society has important scientific activities, the technical aspects are secondary. There appear to be more branches of medicine than of engineering. The Massachusetts Medical Directory lists 89 national medical societies and 19 district or regional societies in this part of the country, all devoted to highly specialized technical matters.

These various branches of medicine are represented in the American Medical Association through the Scientific Assembly. Every member belongs to one of the 16 groups of the Scientific Assembly, each of which elects to the legislature of the parent association. The latter, therefore, represents the individual doctor not only as a resident of Boston, through his delegates from the Massachusetts Society, but also as a gynecologist, or an abdominal surgeon, or as a general practitioner or whatever his particular branch of medicine may be, through his delegates from the Scientific Assembly.

Observe the simplicity and functional directness of this organization. It is the kind of organization that would be devised by an engineer for any problem *except his own!*

In contrast to this simple, effective arrangement, let us look at what we have contrived as a professional organization as engineers. This is shown in an extremely simplified manner, and with special reference to the local situation in Boston in organizational drawing, Figure 2.

I make no apologies for errors or omissions in this diagram. I have had only a few hours available for its preparation, using only my own knowledge and the incomplete catalog of engineering organizations included in the latest issue of "Who's Who in Engineering". To draw a diagram even approximating completeness and accuracy could only be done after many man-years of research. Engineer's Joint Council undertook a study of the organization of the engineering profession a year or more ago, but soon found the problem too big and too complicated for a single committee. They have therefore established separate committees to study engineering organization, one at the local level, one at the regional level and one at the national level. In all probability, the local and regional committees will have to be subdivided in order to accumulate data in any way complete.



ORGANIZATION
OF THE
MEDICAL PROFESSION
FIG. 1

Multiple National Organizations

Coming back to Figure 2, 34 engineering societies are shown at the top of the chart, which are national in their scope. The individual engineer usually joins his organization at the

national level. If his particular society has a local section, he may become automatically, as in the case of the A.S.M.E., a member of the Boston Section. If, however, he joins the American Society of Civil Engineers, he becomes a member of the local (North Eastern) section only on the payment of additional dues. He may choose instead to join the Boston Society of Civil Engineers which has no national affiliations, or he may do neither, thus isolating himself from any local engineering activity. If, however, he is a member, either automatically or by direct action, of any one of 16 local engineering groups, he becomes automatically affiliated with the Engineering Societies of New England, Inc.

An engineer who is not affiliated with any national society or with any local society affiliated with the ESNE may join the latter as a member at large. He may also join purely local organizations affiliated with ESNE, such as the Plant Engineers Club, or he may join local or national societies that have no joint activities with any other engineering organizations.

Affiliation Needed

Apparently, nearly all engineering organizations feel the need for affiliation with others. Figure 2 shows how 16 groups in Greater Boston have allied themselves in ESNE, and it also shows the two principal attempts toward joint effort at the national level, the Engineers' Joint Council (EJC) and Engineers' Council for Professional Development (ECPD).

Of the national societies, the four shown in the large blocks in the middle of Figure 2 are the so-called Founder Societies, the Civil, Mechanical, Electrical and Mining Engineers. Back in the 1920's these four societies formed a federation culminating in American Engineering Council (AEC). This Council was intended to function as a single spokesman for the entire profession of engineering. However, it had no authority of its own. It had only the most indirect ties with individual engineers and it "died of malnutrition" as Mr. Fairman* has so aptly expressed it.

Recognize Need for Overall Organization

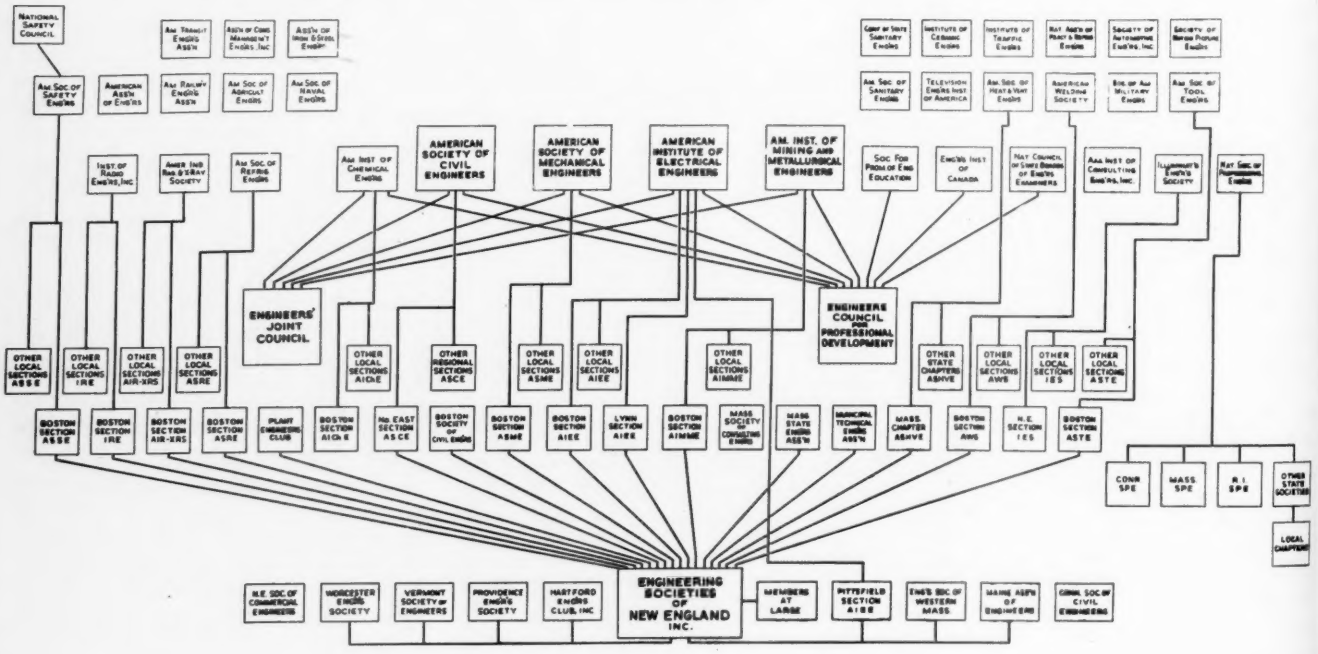
The thoughtful and able men who head these Founder Societies, however, have never lost sight of the crying need for a single organization to speak for all engineers as a united profession. The ECPD and the EJC are the latest endeavors in this direction.

In the ECPD, the Founder Societies have associated themselves with the Society for Promotion of Engineering Education, the American Institute of Chemical Engineers, the Engineering Institute of Canada, and the National Council of State Boards of Engineering Examiners. The nature of their activities is indicated by the standing and special committees now reporting to ECPD:

- Committee on Student Selection and Guidance
- Committee on Engineering Schools
- Committee on Professional Training
- Committee on Professional Recognition
- Committee on Principles of Engineering Ethics
- Committee on Information
- Committee on Engineering Personnel

Societies not represented on the Council of ECPD may nevertheless collaborate in committee work; for example, the American Institute of Consulting Engineers is represented on the ECPD committee on ethics.

*James E. Fairman, Fellow, A.I.E.E., "Organization of the Engineering Profession", Electrical Enginering, June 1945


AMERICAN SOCIETY OF CIVIL ENGINEERS
AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
AM. INST. OF MINING AND METALLURGICAL ENGINEERS
ENGINEERS' JOINT COUNCIL
ENGINEERS COUNCIL FOR PROFESSIONAL DEVELOPMENT
ENGINEERING SOCIETIES OF NEW ENGLAND INC.

ORGANIZATION
OF THE
ENGINEERING PROFESSION
FIG. 2

The annual reports of these committees are inspiring reading, but it is disheartening to reflect on the thought and labor expended on these reports, and then consider how little interest in them is displayed by the engineers for whose benefit they were prepared.

It should be noted, also, that nearly every one of the 34 national organizations shown in Figure 2, and many not shown, have parallel committees each studying the same type of problems for its own particular membership and usually turning up with quite diverse results. Nearly every one of these societies, for example, has a Code of Ethics of its own. Many now have committees studying unionization of engineers and other social and economic problems. ECPD is an attempt to bring order from this chaos, but like the defunct AEC it is remote from the individual engineer, and it is a sad fact that the majority of members of the eight societies who sponsor ECPD have never heard of it.* Very few have any knowledge of or interest in its activities.

Politicians Cannot Handle Engineering Problems

A couple of years ago when Mr. Morgenthau went to Ottawa to tell the Allies how to incapacitate Germany as a military threat, after the war, the presidents of three Founder Societies, the Civil, Mechanical and Electrical Engineers were distressed by the amateurishness and incompetence of the program, and undertook to provide the State Department with sound engineering advice. They called themselves by some other name at that time, but in any event they threw the weight of their three societies into securing a more rational program for the disarming of Germany. While they got more or less of a "brush-off" from the State Department in connection with their initial object, their program eventually became the basis of American administration in Germany. The Presidents of these Societies felt that concerted action of this kind filled a real need and they formed a permanent organization under the name of Engineer's Joint Council. For this, they took into their group the American Institute of Chemical Engineers and the American Institute of Mining and Metallurgical Engineers.

The Engineers' Joint Council consists of the presidents, junior past presidents and secretaries of these five societies. They ask nobody's approval on what they undertake, or what they decide, although they report fully to the membership of their respective societies. In spite of a certain degree of technical irresponsibility, the caliber of the men who compose this council and the eminence of their positions carry great prestige, and this group is undoubtedly the most authoritative in engineering today.

These men are not, however, representative of the entire profession; they do not represent men who are not professional engineers (few of the societies shown on the diagram limit their membership to engineers of professional rank) and their activities can be neither instigated nor controlled by the people for whom they speak. They have no fixed program but undertake the solution of problems which appear pressing, one of which, as previously stated, is an investigation of engineering organization.

Engineers' Joint Council An Effective Agency

The EJC is the most ambitious undertaking, at the moment, for unification of engineering representation. When the EJC sent a committee to appear before the Kilgore Committee in the United States Senate, (another "brush-off" by the way) they described the organization they represented and added, "The Engineer's Joint Council constitutes thus the crowning body of the organized American engineering profession". This is probably true, although some members of ECPD Council would question it, but I find even fewer engineers who are aware of its existence, than in the case of ECPD, even in the case of men who belong to the societies whose officers represent them in this endeavor.* This is a reflection on the engineer rather than on his representatives in EJC. It discloses a lack of professional consciousness which is the root of our trouble, but it is probably due to the remoteness of the Council from the individual engineer, the fact that the individual pays no direct dues for its support and gets no direct reports of its activities. He is not conscious of paying for something from which he has a right to demand results. He feels no moral obligation to back up this "crowning body" in its undertakings, or to contribute his own time and effort to tis objectives.

Overlapping Organizations Everywhere

Serious consideration is now being given to another federation or union of national engineering societies, another superorganization to represent all engineers through joint action of existing societies. A movement toward unification is commendable, but I fear no such coalition can be effective. It is subject to the same defect of remoteness from the individual, and the existing societies whose cooperation would be involved are not strictly professional societies.

Returning to the local and regional levels, this Boston—New England hodgepodge, shown in figure 2, is repeated in nearly every major industrial center in the United States. The Technology Club of Syrascuse is almost exactly analagous to Engineering Societies of New England, Inc. I believe the Engineers' Clubs in Detroit and Philadelphia represent the same general type of effort toward unification but no two situations are exactly alike, and I certainly pity the EJC Committee which is studying engineering organization at the regional level.

In this diagram, I have included only societies which purport to be straight engineering societies. I have included no hybrids such as the Association of Consulting Chemists and Chemical Engineers or the Society of Naval Architects and Marine Engineers. I have not included such organizations as the American Gas Association, the American Petroleum Institute, the Institute of Aeronautical Science, the American Society for Metals and the American Water Works Association because, while they are frequently grouped among engineering societies, and many engineers belong to no other technical organizations, they do not confine their activities to engineering matters and their membership includes many who are not engineers. I have not included such organizations as the American Concrete Institute or the American Society for Testing Materials, or such group activities as the American Standards Association. I have not included some large racial or nationalistic organizations such as the Society of Danish Engineers, the Society of Swedish Engineers, or the Society of Polish Engineers.

*At the meeting of more than 400 professional engineers in Boston when this paper was presented, less than 30 indicated by show of hands, that they had heard of both EJC and ECPD, less than 50 that they had ever heard of either.

No diagram of engineering organization could be complete without the inclusion of such important factors as the Prime Movers Committee of the Edison Electric Institute and the Power Generating Committee of the Association of Edison Companies, but I just do not know how to work them in. The more I think about it, the more I think the EJC Committee on organization at the national level should also have our sympathy. I have not included engineering college groups such as the Harvard Engineering Society, which has both a national society and regional groups, or the alumni societies of engineering schools, or the national engineering honor societies. I have not included Boston Engineers Club because it is primarily a social club, and because many of its members have not the slightest connection with engineering.

I have included, however, the American Welding Society, which is by no means limited to engineers, because it is allied with Engineering Societies of New England, Inc., and I have included the Engineering Institute of Canada, because it is cooperating in the activities of Engineers' Council for Professional Development, although it has nothing to do with our local situation or engineering in the United States. National Safety Council is shown in the diagram, though not counted as an engineering society, because the National Society of Safety Engineers is the engineering division of that Council. There are doubtless dozens of national societies not included because I never heard of them or because they are not listed in "Who's Who in Engineering." I may have omitted some local societies as well.

NSPE On Chart, Fig. 2

This chart shows inconspicuously at the right-hand side, the National Society of Professional Engineers with its component societies in Connecticut, Massachusetts and Rhode Island. There are state branches in 20 other states, but this discussion is prepared with particular reference to Boston and New England. So far as this chart is concerned, and in fact so far as the present situation is concerned, this NSPE, with its state societies and local chapters is more or less of a twenty-fifth wheel to the cart, a highly supernumerary and unnecessary organization, but let's look for a moment at how the engineering profession could be organized.

In Figure 3, we show in solid lines the Society of Professional Engineers as now organized, and in dotted lines the developments for which we hope. This is obviously modeled on the American Medical Association, without the complications of the technical activities in the legislative assembly, which, for engineers, can safely be left to the hundred or more societies organized fundamentally for technical purposes.

It has been suggested that something like the Doctors' Scientific Assembly might be incorporated in NSPE, in this case being the elected representatives of the Founder Societies and other major organizations. This plan is certainly worthy of consideration and study. The only obvious objection is that we would again be mixing the professional with the non-professional, but there is no question but what the men whom these societies would elect would be engineers of professional stature. Moreover, it is conceivable that the Founder Societies may some day make professional registration a requirement for full membership in their organization.

The NSPE Is Definitely Unique

Assume for the moment that nearly every real engineer in Massachusetts became a member of the Massachusetts Society of Professional Engineers as nearly every real doctor is a member of the Massachusetts Medical Society. We could then subdivide, as the equivalent societies have done in other states like Pennsylvania, into regional chapters, for example, in Lowell, Springfield, Boston, Pittsfield and other industrial centers. Remember that this Society is the only engineering organization which admits nobody who is *not* a professional engineer and which admits any professional engineer regardless of his specialty, and regardless of whether he is an employer, an employee, or self-employed. You can readily see how, with a really representative membership, such an organization could speak for the profession.

I said this organization is composed exclusively of professional engineers. How do we know who is a professional engineer? How do we know who is a doctor? That sounds like a silly question—everybody knows whether a man is a doctor or not. He has an M.D. degree. He puts out a sign and calls himself a doctor. BUT, if you will consider the matter a moment, you will appreciate that the real reason we know he is a doctor is because he is licensed by the Commonwealth to hang out that sign. He does not get to be a doctor by working in a hospital, or by working in a drugstore, or by getting to be president of a pharmaceutical concern; he does not get to be a doctor by being graduated from a medical school; he may have done all of these things, but he gets to be a doctor when the Commonwealth says he is a doctor.

Attempts to Define an "Engineer"

Now, we have the same potential situation with engineers. The Commonwealth of Massachusetts is set up to define whether you are or whether you are not an engineer. If the Commonwealth's definition does not suit you that may be because you have no organization to speak for you in professional matters or because you, or such organization as you have lacks sufficient professional consciousness to do anything about it. That would be one of the first objectives of a really representative society, first to study the existing law, and, if it does not suit us, get it repealed or amended. We should consider what other states have done and are doing, but the reason for division of NSPE into state units is to enable the members to act in their locality in complete knowledge and understanding of the requirements in their particular situation.

I say this Massachusetts Society is a *potential* professional organization. The sister societies in other states are becoming something more than a potential force, because they have a large membership. This Society will function effectively only when substantially all professional engineers ally themselves with the organization, who have been active in the older first having become eligible by getting their status defined by the Commonwealth, and then accepting responsibility for the common good in professional matters. Technical activities can be left to present affiliations.

Leaders of Caliber Essential

The Society does not need numbers alone; it needs leaders of the caliber and prestige possessed by the present leaders of the Founder Societies. In Massachusetts, we have made a particular effort to enlist the aid of men

Societies, and who are recognized as leaders in their particular branches of engineering. These efforts have met with considerable success, as our membership list attests, but we intend that the growth of the Society shall be well balanced and continue to be representative of the whole profession. We hope that, within a short while, all engineers in Massachusetts who possess the qualifications for registration as professional engineers will become registered and become members of the Massachusetts Society of Professional Engineers.

A number of people have asked if we are trying to form a union. Well, let's look at the American Medical Association again. Is that a union? As an agency for collective bargaining, it is the world's best. When you hire a doctor you are bargaining with the entire medical profession. You will pay that doctor what the entire group thinks you should pay. Young doctors trying to start in business do not establish themselves by cut rates even in the times of deepest depression. You will pay your doctor for everything he does. Medical advice is not given away with a bottle of syrup. Free examinations are not offered, in the hope of securing a lucrative operation.

You can not save any money, so far as your doctor is concerned, by going over the line from Brookline into Newton, or from Dorchester into West Roxbury. It is a united front. They bargain collectively even with the United States Government. During the war, a doctor could be drafted, but you could not put him in the Army with a rank lower than first lieutenant. A graduate engineer could be drafted, too, and the lowest rank he could be given was apprentice seaman or third-class private. You could draft a medical student, but you sent him right back to medical school and allowed the medical profession to maintain its efficacy by producing the normal number of doctors each year during the war. An engineering student could also be drafted, but nothing was done to maintain the supply of engineers for our industrial welfare. Try to hire one.

Is Collective Bargaining Unprofessional?

The American Medical Association is, then, a tremendously powerful agency for collective bargaining. Organized for the public welfare, incidentally, they take pretty good care of the doctors. In spite of all this, the American Medical Association is *not* a union. It does not remotely resemble a union.

The American Medical Association has never placed any limitation on the number of operations that a surgeon may perform in a day or a week or a year. It has never placed any limitations on his hours of labor. It has never claimed that all doctors are equal in ability and should receive the same pay, or that the pace must be set by the laziest or the least efficient. It has never coerced anybody into joining. It has never told you what doctor you must employ, or that you cannot dismiss one whom you consider unsatisfactory. And can you imagine the American Medical Association even considering a strike? Can you imagine the Suffolk District Medical Association picketing a doctor's office? You can not imagine it, because you have been taught to understand that doctors are professional men, equally aware of the privileges and the responsibilities of their calling.

Strikes and picketing are as unnecessary for the doctor as they are unthinkable, because you recognize the doctors as a professional body, and when this body tells you that any man or any practice is "unprofessional," you start your own boycott, you do the picketing for them. You have been taught these things by the doctors' professional organization, the American Medical Association, which has not the slightest trait in common with any American Labor Union.

The doctors are organized *as a profession*—the engineers can be organized *as a profession,* if they will.

While I have taken the American Medical Association as a goal for which engineers should strive, actually we have an example of what united effort will do somewhat nearer home in the American Chemical Society. Chemists, like engineers and doctors, belong to a variety of technical organizations, but practically every chemist of professional pretentions belongs to the ACS. They have 44,000 members and speak with authority and conviction for the entire profession. While their objectives are primarily technical, they at least unify the profession and constitute the only chemical society interesting itself in professional matters. This society has come to the rescue of its members, when threatened with unionization, so ably and effectively that it has so far prevented any industrial organization, or any political bureau, or any labor union from forcing a professional chemist, professionally employed, into a labor union against his will. They have also refused to arrange interviews between chemists and prospective employers whose salary scale is unsatisfactory, and have thereby definitely raised standards of compensation.

Registration Identifies A "Profession"

There is no reason, however, why we should not aspire to an organization as comprehensive and effective as that of the doctors. I become very impatient with those engineers who protest that doctors are a distinct and identifiable group while engineers are a mixed lot, not strictly definable. It is true there are concrete foremen, draftsmen, master plumbers and others who are not engineers, but who successfully perform engineering functions. Such confusion was equally discernible in the medical ranks before the days of registration. I was brought into the world by a doctor who learned his "trade" by driving an older doctor's buggy. In my youth, I often exposed my tongue to the "doctor" who ran our corner drugstore.

There is now, however, no difficulty in distinguishing between a physician, a registered nurse, a registered pharmacist, and a hospital cook or orderly. Registration of doctors and the American Medical Association have made the difference. There will be no difficulty in maintaining equally firm definitions in engineering and allied activities as the engineers themselves become convinced of the importance and urgency of the situation, take registration seriously, and organize as a profession.

"Is You Is, Or Is You Ain't?"

As stated before, the majority of us are either professional men or we are laborers in the unions' acceptance of that classification. You may be aware that in Canada it has already been decreed that employed engineers are subject to the "Labour Relations Act." Only the energetic efforts of the Provincial Engineers Societies have won them the right to form their own bargaining agencies, a right which the unions are actively contesting in the City of Toronto.

To establish professional status requires organization as a profession. The clumsy and inoperative program shown in Figure 2 simply will not function, no matter how elaborate a superstructure may be built upon its chaotic foundation. The alternative is the direct, simple and effective type of organization, the kind of organization an engineer would conceive, shown in Figure 3. The framework of this organization is in existence. It will become effective when the vast majority or all American engineers have joined its ranks and work for a common purpose, regardless of their technical affiliations.

ENGINEERING SOCIETIES AND SOCIETIES WITH ACTIVITIES RELATED TO ENGINEERING LISTED IN "WHO'S WHO IN ENGINEERING", 1941—NATIONAL

Acoustical Materials Association
Acoustical Society of America
Aeronautical Chamber of Commerce of America, Inc.
American Association for the Advancement of Science
American Association of Engineers
American Association of Petroleum Geologists, Inc., The
American Association of Port Authorities, Inc.
American Ceramic Society
American Chemical Society
American Concrete Institute
American Electrochemical Society, Inc.
American Gas Association
American Institute of Chemical Engineers
American Institute of Consulting Engineers
American Institute of Electrical Engineers
American Institute of Mining and Metallurgical Engineers, Inc.
American Institute of Steel Construction, Inc.
American Mining Congress
American Petroleum Institute
American Public Works Association
American Railway Bridge and Building Association
American Railway Engineering Association
American Road Builders' Association
American Society of Agricultural Engineers
American Society of Civil Engineers
American Society of Danish Engineers
American Society of Heating and Ventilating Engineers
American Society of Marine Designers
American Society of Mechanical Engineers, The
American Society for Metals
American Society of Naval Engineers
American Society of Refrigerating Engineers
American Soc. of Safety Engrs.—Engineering Section, National Safety Council
American Society of Sanitary Engineering
American Society of Swedish Engineers, The
American Society of Tool Engineers, Inc.
American Society for Testing Materials
American Transit Engineering Association
American Standards Association
American Water Works Association
American Welding Society
Association of American State Geologists
Association of Consulting Chemists and Chemical Engineers, Inc.
Association of Consulting Management Engineers, Inc.
Association of Iron and Steel Engineers
Conference of State Sanitary Engineers
Electrochemical Society, Inc., The
Engineering Foundation, The
Illuminating Engineering Society
Industrial Management Society
Institute of Ceramic Engineers
Institute of Radio Engineers, Inc.
Institute of Scrap Iron and Steel, Inc.
Institute of Traffic Engineers
Mining and Metallurgical Society of America
National Aeronautical Association
National Association of Practical and Refrigerating Engineers
National Council of State Boards of Engineering Examiners
National Research Council
National Society of Professional Engineers
Ocean Association of Marine Engineers
Polish Engineering Society
Society for Advancement of Management, The
Society of American Military Engineers, The
Society of Automotive Engineers, Inc.
Society of Motion Picture Engineers
Society of Naval Architects and Marine Engineers, The
Society for the Promotion of Engineering Education
Television Engineers Institute of America
United Engineering Trustees, Inc.
Federation of Architects, Engineers, Chemists and Technicians

MASSACHUSETTS

BOSTON

Boston Engineers Club
Boston Society of Civil Engineers
New England Association of Commercial Engineers
Engineering Societies of New England, Inc.
New England Water Works Association

SPRINGFIELD

Engineering Society of Western Massachusetts

WORCESTER

Worcester Engineering Society

MEDICAL SOCIETIES (IN ADDITION TO THE AMERICAN MEDICAL ASSOCATION, WITH STATE AND DISTRICT AFFILIATES) LISTED IN AMERICAN MEDICAL DIRECTORY, 1940

SURGERY, GYNECOLOGY, OBSTETRICS, ORTHOPAEDICS, PROCTOLOGY AND ANESTHESIA

American Association of Obstetricians, Gynecologists and Abdominal Surgeons
American Gynecological Society
American Orthopaedic Association
American Proctologic Association
American Surgical Association
Southern Surgical Association
Western Surgical Association
Clinical Orthopaedic Society
Pacific Coast Surgical Association
American Bd. of Obst. and Gyn. (Indicated in physicians' data as A.B.7)
New England Obst. and Gyn. Society
Central Association of Obstetricians and Gynecologists
North Pacific Surgical Association
Eastern Surgical Society
Southeastern Surgical Congress
American Academy of Orthopaedic Surgeons
Pacific Coast Society of Obstetrics and Gynecology
Southern Society of Clinical Surgeons
American Society of Anesthetists, Inc.
American Society of Regional Anesthesia, Inc.
American Association for the Surgery of Trauma
The South Atlantic Association of Obstetricians and Gynecologists
American College of Surgeons
American Board of Anesthesiology, Inc. (Indicated in physicians' data as A.B.13)
Society of Clinical Surgery
Society of Neurological Surgeons
New England Surgical Society
American Association for Thoracic Surgery
American Board of Orthopaedic Surgery. (Indicated in physicians' data as A.B.3)
American Board of Surgery. (Indicated in physicians' data as A.B.12)

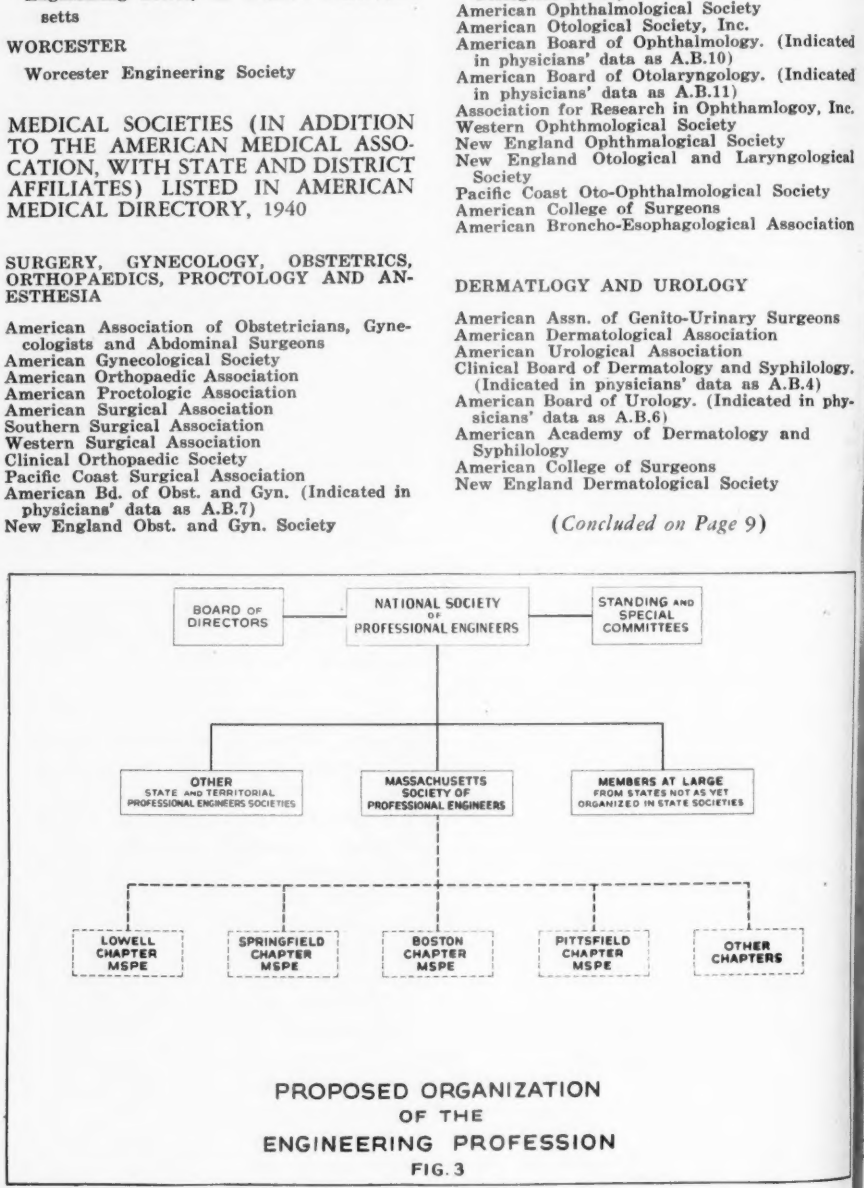
OPTHALMOLOGY, OTOLOGY, LARYNGOLOGY AND RHINOLOGY

American Academy of Opthalmology and Oto-Laryngology
American Laryngological Association
American Laryngological, Rhinological and Otological Society
American Ophthalmological Society
American Otological Society, Inc.
American Board of Ophthalmology. (Indicated in physicians' data as A.B.10)
American Board of Otolaryngology. (Indicated in physicians' data as A.B.11)
Association for Research in Ophthamlogoy, Inc.
Western Ophthmological Society
New England Ophthmalogical Society
New England Otological and Laryngological Society
Pacific Coast Oto-Ophthalmological Society
American College of Surgeons
American Broncho-Esophagological Association

DERMATLOGY AND UROLOGY

American Assn. of Genito-Urinary Surgeons
American Dermatological Association
American Urological Association
Clinical Board of Dermatology and Syphilology. (Indicated in pnysicians' data as A.B.4)
American Board of Urology. (Indicated in physicians' data as A.B.6)
American Academy of Dermatology and Syphilology
American College of Surgeons
New England Dermatological Society

(*Concluded on Page 9*)


BOARD OF DIRECTORS
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
STANDING AND SPECIAL COMMITTEES
OTHER STATE AND TERRITORIAL PROFESSIONAL ENGINEERS SOCIETIES
MASSACHUSETTS SOCIETY OF PROFESSIONAL ENGINEERS
MEMBERS AT LARGE FROM STATES NOT AS YET ORGANIZED IN STATE SOCIETIES
LOWELL CHAPTER MSPE
SPRINGFIELD CHAPTER MSPE
BOSTON CHAPTER MSPE
PITTSFIELD CHAPTER MSPE
OTHER CHAPTERS

PROPOSED ORGANIZATION
OF THE
ENGINEERING PROFESSION
FIG. 3

It's Your Profession – So –

By Randolph W. Mallick

It is hoped that you will read this article through and then join in complying with the editor's request for material for the "American Engineer."

Many of the social and economic problems that face the engineering profession today are the result of laxity on the part of the engineers themselves. If we are to grow strong and achieve prestige, that strength must stem from within.

It seems paradoxical that engineers who approach their technical problems with such thoroughness and precision, should falter when the nature of the problems differs only in its tangibility. The same rules of analysis and synthesis apply.

I have great faith in the engineering profession. I believe its contributions to mankind have been uncalculable. For that reason I secured professional registration and joined the N.S.P.E. without the necessity or compulsion of doing so. Practicing engineering for a corporation in Pennsylvania exempts one from registration. I propose to join in, with whatever minute efforts I can to improve the lot of the profession.

Why do I choose to do this? First of all it's my profession. Through it, I contribute to society and justify my place in it. Also my livelihood depends on it. Secondly, I have two promising youngsters whom I fear may some day too, decide to follow the profession. I believe that all of us would like to someday feel that our profession developed and was better established when we finally left practice, than when we entered it.

We must, for ourselves, for society, and for future generations of engineers, mold our profession into an amalgamation of undisputed prestige and virtue. We can only do this by merit within ourselves, and by unity of purpose in our numbers. We must be modest in action, but not let this modesty react to our detriment at the hands of the less discreet. We should not "hide our collective light under a bushel."

All the professions, if they are to achieve their purpose, must endeavor to develop public appreciation. They must strive to redirect public attention away from the glamor and drama of the parasites of society. This will be a long and arduous task and must begin in our educational institutions.

My own observations lead me to the following conclusions.

With advent of industrialism, the engineers gave up the "tools of their profession" too readily. Today, thousands of engineers are engineers in name only while on the premises and in the employ of the corporations who hire them. They could accomplish little "outside the office" and in many instances are not accepted as engineers in private life.

Why do we have this condition? Corporations cannot create and title doctors, dentists, lawyers, or clergymen when they require them for their staffs. Not even a nurse for their First Aid Departments. Yet they can create "engineers" with the stroke of a pen. And any brand you desire, or that may be convenient to fill a need. This is the number one problem that must be tackled.

How shall we begin to invite public appreciation? I believe we should be proud of the profession and promote it in the public eye. I suggest that the

Randolph W. Mallick

Mr. Mallick is a registered Professional Engineer, a member of the Pennsylvania Society of Professional Engineers; the NSPE; American Society of Tool Engineers, Senior Grade; ASME; Executive Committee of Materials Handling Division, ASME; Chairman of Plant Layout Model Standards Committee, ASME. He has presented many papers and articles before ASTE; ASME; AISE, and numerous other non-society groups. He has published numerous magazine articles on the subject of plant layout, Materials Handling, and Three Dimensional Planning. His most recent articles appeared in the August 1945 *issue of "Factory Magazine, and November issue of Industrial and Manufacturing Engineering, Toronto, Can. Education, Westinghouse Tech., Carnegie Tech., Pennsylvania State. At present Mr. Mallick is Section Head, Headquarters Plant Layout and Materials Handling Engineering, Westinghouse Electric Corporation Pittsburgh, Penna..*

(*Continued from Page* 8)

PEDIATRICS AND INTERNAL MEDICINE

American Pediatric Society
American Academy of Pediatrics
New England Pediatric Society
Central Society for Clinical Research
American College of Chest Physicians.
Association of American Physicians
North Pacific Society of Internal Medicine
American Gastro-Enterological Association
American College of Physicians
National Gastrenterological Association
American Society for Clinical Investigation
American Clinical and Climatological Assn.
American Board of Pediatrics. (Indicated in physicians' data as A.B.1)
American Board of Internal Medicine. (Indicated in physicians' data as A.B.8)

NEUROLOGY AND PSYCHIATRY

American Neurological Association
American Psychoanalytic Association
American Association of Neuropathologists
Southern Psychiatric Association
American Psychiatric Association
New England Society of Psychiatry
Association for Research in Nervous and Mental Disease
American Psychopathological Association
Central Neuropsychiatric Ascociation
American Orthopsychiatric Association
American Board of Psychiatry and Neurology. (Indicated in physicians' data as A.B.2)

PATHOLOGY, BACTERIOLOGY AND ANATOMY

American Association of Anatomists
American Assn. of Path. and Bacteriologists
American Society of Clinical Pathologists
Society of American Bacterologists
American Society of Experimental Pathology
American Board of Pathology. (Indicated in physicians' data as A.B.9)

ROENTGENOLOGY AND RADIOLOGY

American Roentgen Ray Society
New England Roentgen Ray Society
Radiological Society of North America, Inc.
American College of Radiology
American Radium Society
American Board of Radiology. (Indicated in physicians' data as A.B.5)

National Society through resolution or by-law, sponsor the uniform practice of affixing to the signature of all registered engineers the words "Registered Engineer" or "Professional Engineer," or the initials "R.E." or "P.E.". Are not professional engineers entitled to the same distinction as "M.D." or "D.D.S." or "Ph.D."? This is an old discussion, but one which should be thoroughly thrashed out and a final decision made. Addressing society correspondence in such a manner, is alone, not enough. Whatever practice is recommended, it should be universally adopted.

Who can blame the public for taking the engineering profession for granted when every school boy's attention is attracted to crime and fancy rather than the arts and sciences. Every kid in the neighborhood glories in adventures of gangsters, thanks to our newspapers and radios that glorify these things. How many of even the best citizens of the community know who engineered their public buildings, bridges, highways, invented and directed the manufacture of the equipments that helped win the war, or are pioneering the things that will afford a more abundant life in the peace we hope to enjoy.

Psychologists tell us that merit and talent alone contribute little to success. Unless the correct "human relations" condition exists, we are almost doomed to failure or at least mediocre existence. We might as well face the facts. Collectively or individually, the problem is the same.

The complexity of the situation is such that no one individual or group can hope to offer a solution. Nor can we expect results in a hurry. The ills are too deeply rooted. We can, however, each think, suggest, and cooperate toward the common end, and thereby contribute our rightful share.

To further invite public appreciation, we should seek to get more news of engineering accomplishments in periodicals that reach the general public. Entirely too many of these articles appear in trade and technical journals that have extremely limited circulation. In due course of time, the public will "want to know" more about the things and men that create for society rather than destroy it. That taste must be developed. Newsmen will tell you that under today's yardstick of public acceptance those things are not news.

Last but not least, the Society must of necessity protect the welfare of the members of the profession. With the present trends of unionism, etc., there will soon be little interest and incentive for the cream of our young men to follow engineering. Let us all hope and work that the profession will be so well accepted by all, that "collective bargaining" as we know it, today, will never befall it, as a measure of existence.

It's your profession—is it worth the efforts?

National Issues—Washington Economic and Political Front

A studied effort is made to avoid taking sides on controversial issues in this monthly digest. Our chief purpose is to point out to thoughtful engineers, the need for something of the "Engineering Approach", and possibly also a little "Professional Ethics" on the part of those entrusted with the handling of matters of public policy.

The situations most frequently highlighted in this column are those which illustrate the need for a more coherent administration of government affairs. We try to emphasize the nature and extent of the vagaries, the inconsistencies, the irrationalities which seem to be inherent in our traditional political and economic (scarcity) approach to social issues even on the national level.

We claim no originality for these discoveries. But we do feel that the time has now come when modern governments must become rational or perish in an Atomic Age. The situation is getting far too serious to permit of its being shrugged off in any cynical fashion. How can we continue to boast of our "glorious systems of government" when so many men of high competence and honorable motives have come to shun the vocation of "politics" as they would a leper colony?

Homes For Veterans

Senators demonstrated the depth of their convictions on the so-called housing bill, subsidizing production of scarce building materials, by refusing to have their individual votes recorded. At about the same time certain members of the Senate expressed resentment over indiscriminate criticism of that body. From what might be described as an "engineering point of view," the most serious fault to be found with our nation's highest legislative body, is its refusal to modernize and simplify its rules of procedure.

The battle over methods of price control continues with heat but without much light. All agree that inflation must be avoided at all costs. Some business interests are giving wide publicity to their program "allowing prices to rise as a means of preventing inflation!" When it is understood that rising price levels are the only practical measure of the degree of inflation, it is evident that public intelligence on economic questions is held in very low esteem, especially by public relations experts who prepare such publicity.

The labor-strike situation continues mixed and uncertain. Some of the older conflicts are clearing up, but new ones continue to develop, indicating that basic conditions are far from stable. Labor and management continue to jockey for position in relation to prices, wages, and working conditions. No fundamental issues are being faced. One thing everybody agrees on is that the output could be vastly increased if this could be done without causing the total market values of goods and services to exceed the total free purchasing power available to consumers. Evidently we are attempting to plumb the "upper stories of our economic structure, without having put a sound foundation under it."

Do Wars "Save Capitalism"?

As this is being written, there is another battle on in Congress over the proposed loan to England, Secretary of the Treasury Vinson, testifies that the loan is necessary "to save capitalism." He suggests that after we have "spent nearly 300 billions of dollars in a war to save capitalism" we ought not to begrudge another 3¾ billion to finish the job." The Senators do not seem to be impressed. Maybe the argument is a bit over their heads. Anyhow legislation is not decided generally by

arguments, but by the potency of pressures.

There were many lifted eyebrows in Washington over the news that Russia's request for a loan had been "lost" in the files of the State Department. It might well surely develop a lot of highly emotional oratory, but that Russian loan may eventually become a reality. Not that the Senators are fond of the Russian government, and not because anybody understands just how further foreign loans can "save capitalism." But loans do mean production, and production means more profits and less labor trouble. After all, it will be our Uncle Samuel who takes the risk, even if he doesn't share in the "wages of risk," i.e., the profits.

Distrust Precedes War

Our relations with Russia, in the opinion of trained observers in Washington are on the verge of becoming dangerous. It is admittedly true that the Russian government puts very little trust in the good intentions of the democracies or the United Nations. This attitude on the part of the Russians is taken by many Senators and government officials to be inexcusable. They are inclined to hold Russia responsible for any incidents that may grow out of this distrust on her part.

Other officials here, while deploring Russia's unwillingness to consult with her former allies, feel that her attitude is at least understandable, if not justified. This view is held, as one Senator explained, "because I understand the Russian belief that England and to a lesser extent, this country, has been rather consistent appeasers of fascist and other bitter antagonists of the Russian form of social organization. For example, in San Francisco, the Russians were one of four nations out of 35 which opposed the admission of Argentina into the UNO. On the other hand, Russia's only concession to the Hitler Axis, was her non-aggression pact with Germany, which she entered only after England and Poland refused to enter any protective agreement against Hitler." Concluding, this Senator said: "Russia feels that our nation's policy is to side with England's imperialist program, and on the surface she appears to be correct. This view will not appeal to those whose hate of Russia is greater than their hatred of another World War."

Congress seems inclined to put the control of Atomic energy in the hands of pro-military men who originally opposed its development.

Scarcity Grows

Evidence multiplies daily that the world shortage of foods, fuel and clothing is more serious than anticipated. As usual the situation, which calls for long range planning, is being handled piece-meal and by dozens of agencies, many of them privately directed and financed. It does seem that if that problem of total production and distribution, had been put under the direction of thoroughly competent and disinterested Professional Engineers months ago, a great deal of privation and suffering might have been averted.

High-lighted in the news are the relations of the democracies with the present governments of Spain and Argentina. As is the case with so many irritating problems, the issues are beclouded by a host of irrelevant ideologies and prejudices, involving political intrigue, religious factionalism and regional jealousies. It seems likely that the world may have its quota of utterly unnecessary conflicts, until its leaders reach a degree of intellectual maturity which allows them to throw off all concern for irrelevancies in dealing with important social problems. If the mere exposure to a certain amount of engineering education and experience always resulted in such maturity, possibly engineers might be even now, entrusted with many more responsibilities of a public nature than they are enjoying.

The hundreds of millions spent on the production of the atomic bomb by Great Britain and the United States would never have been spent by either government on a removal of the causes of war. This despite the fact that an "ounce of prevention might be more effective than a pound of cure."

Dr. Harlow Shapley, well known scientist of Harvard, suggests that one of the great needs of the time is a "list of all the unsolved problems over the whole field of science, in order to guide the young investigators." Why not include in such a list a statement of all the unsolved social and human problems?

Arthur V. Sheridan

The February 21st issue of the Engineering News-Record reproduces a photograph taken at Schondorf, near Munich in Bavaria, showing Arthur V. Sheridan, commission of public works, The Bronx, N. Y.; Anthony J. Fischer, development engineer of the Dorr Co., Inc., NYC; Arthur E. Gorman, engineer-representative of the War Production Board, Washington, D. C., and Dr. and Mrs. Karl Imhoff. Dr. Imhoff is the noted sanitary engineer, whose practice and patents have had favorable acceptance in the United States since about 1910. Mr. Sheridan has been active in the NSPE, and for some months acted as editor of the American Engineer. He returned to this country recently after completing important assignments for our government in Germany.

What is an Engineer?

The Engineer replies: "I take the substance out of which dreams are made and I work and weave with this substance, using the tools of the magic of mathematics and my knowledge of the properties of the materials of the earth. When I have completed my task, all can see that the dreams and plans have been materialized for the greater comfort and convenience of mankind. I am an Engineer—I make dreams come true."

—Frank Heineman, P.E.

On the subject of politics and economics many of us are like the lady who remarked: "I know nothing about art, I'm only a connoisseur."

Analysis of the Pennsylvania State Engineers' Registration Act

By Ray M. Fuller

Editor's Note: This is a condensation of an address delivered by Mr. Fuller at a meeting of the Drexel Evening School Alumni Association, Philadelphia.

Ray M. Fuller

Before proceeding with any intelligent discussion of a subject it is always desirable to have some understanding of what is going to be discussed. I have been asked to talk about the Engineer's Registration Act in Pennsylvania. Probably I should say, of Pennsylvania. I shall discuss how the applicant will be affected who does not hold a college degree.

The new Act, a law of the Commonwealth of Pennsylvania, to become effective June 30, 1946 says:

The Law's Unexpected Effects

I am not a lawyer, and I do not profess to speak with authority on such matters, but a good many years of living with some amount of observation mixed in, has impressed on me the fact that laws such as this, passed "to safeguard life, health, and property," usually have additional effects other than those which are first intended. They first have the effect that the vested authority which enacted them intends, or at least they should have; next, as a by-product of the first, they have the second effect at least, of working changes on the lives of the persons or groups they seek to regulate, the extent and depth of which cannot always be measured at the time. And it is here that the trouble usually starts.

Leaving for the moment any question of the effect of this regulatory statute in so far as it affects engineers and engineering, let us consider what it intends and the reason for its passage.

This part of it I believe is very simple. Essentially it is the exercise of the police power of the state to, as stated in the Act "safeguard life, health, and property". This is fundamental and necessary. The Act was not passed to promote a monopoly for any group or the engineering profession at large; that is one of the things no legislature will knowingly do. And if they overstep, I think the courts would set aside such a law in short order.

Interesting History

I have recently had occasion to delve into the archives of the Engineers' Club of Philadelphia and in doing so I ran across these items of interest.

11-7-08—F. G. Myherletz—Paper on "Should Engineers, Architects and Builders be licensed". (I regret that I have been unable to locate the paper referred to).

11-2-08—Minutes of the Engineers Club—"Mr. F. C. Myhleretz presented a resolution, which, in accordance with the by-laws will come up for discussion at the next business meeting of the Club. The Resolution is as follows: "That a committee of three be appointed, empowered to confer with similar committees from other organization and to codify matters relating to the subject of endeavoring to secure passage of a law requiring that all who practice the professions of Engineer, Architect or Builder shall be licensed."

Again — Special meeting, October 17, 1914 (To receive the report of the committee on Public Relations relative to the licensing or registration of Engineers of the State of Pennsylvania). Report received and accepted.

The new Act, so our lawyers inform us, is probably the most advanced legislation in the field of engineering registration in this country. As it was introduced in the legislature it protected the interests of both the public and the engineering profession. These interests are compatible and I cannot visualize equity to the one without equity to the other. In it we attempt to safeguard the engineer in private practice as well as the engineer who is an employee, also to safeguard the interests of industry and keep from creating a monopoly. If passed, it will not please everyone — nothing ever does.

You are interested primarily in the new Act as it affects the engineer applying for registration without the advantage of a college degree.

Engineer-In-Training Provisions

The new Act has set up the so-called "Engineer in Training" status, which, if it is adopted and no change in wording is made, says:

(b) "Engineer-in-Training" means a candidate for licensure as a professional engineer who has been granted a certificate as an engineer-in-training by reason of graduation from an approved institution or college, or after successfully passing the prescribed written examination in fundamental engineering subjects, and who shall be eligible upon the completion of the requisite years of experience in engineering under the supervision of a professional engineer or similarly qualified engineer, for the final examination prescribed for licensure as a professional engineer.

Farther on—In case of the applicant who is not an engineer-in-training, the examination shall be for the purpose of testing the applicant's knowledge of fundamental engineering subjects including mathematics and the physical sciences and those matters which will test the applicants ability to apply the principals of engineering to the actual practice of engineering.

Qualifying Experience

(4) "Has had twelve or more years of active practice in engineering at least eight of which shall have been under the supervision of a professional engineer, or similiarly qualified person,

of a grade and character to fit him to assume responsible charge of engineering work, and who successfully passes a written examination prescribed by the board for the purpose of testing the applicant's knowledge of fundamental engineering subjects including mathematics and the physical sciences, and those matters which will test the applicant's ability to apply the principles of engineering to the actual practice of engineering. Each year of teaching, or of study, of engineering in an approved institution or college shall be considered the equivalent of one year of actual practice, but not more than a total of four years shall be credited for teaching and the study of engineering.

(c) "Examination and Certification of Engineers-in-Training. To provide for and to regulate the examination of any person who has had four or more years' experience in the practice of engineering and who produces satisfactory evidence to show knowledge, skill and education approximating that attained through graduation from an approved institution or college, and to issue to any such person who successfully passed such examination a certificate showing that he has successfully passed this portion of the professional examination and is recognized as an engineer-in-training. The examination of applicants as engineers-in-training shall be designed to permit the applicant for licensure as a professional engineer to take his examination in two stages. The examination for certification as an engineer-in-training shall be for the purpose of testing the applicant's knowledge of fundamental engineering subjects including mathematics and the physical sciences. Satisfactory passing of this portion of the examination shall constitute a credit for the life of the applicant, or until he is licensed under this act as a professional engineer.

Any person who is a graduate in engineering from an approved institution or college having a course of four years or more in engineering shall be granted a certificate as an engineer-in-training without examination.

Applications Are Investigated

(2) Investigations of Applications Determination of Competency of Applicants.

To investigate the allegations contained in any application for licensure or certification under this act, in order to determine the truth of such allegation and to determine the competency of any such person applying for licensure to assume responsible charge as a professional engineer or surveyor, such competency to be determined by the grade and character of the engineering or the grade and character of the surveying actually performed. The mere execution as a contractor, or the supervision of the construction of such work as a foreman or superintendent, or the operation or maintenance of machinery or equipment, or work performed as a salesman of engineering equipment or apparatus shall not be deemed to be active practice in engineering unless such work has involved the actual practice of Engineering and Surveying, work performed under the supervision of a professional engineer or surveyor shall be given full credit. Whenever the board determines otherwise than by examination that an applicant has not produced sufficient evidence to show that he is competent to be placed in responsible charge, and shall refuse to examine or license such applicant, it shall be set forth in writing its findings and the reasons for its conclusions and furnish a copy thereof to the applicant.

The Chief Changes

The principal changes from the old in the new as they affect your graduates of Drexel Evening Schools are the compulsory examination features and the years of experience required. You men should be in preferred position in so far as the examinations are concerned I think. You have gotten your theoretical training combined with the practical. A man usually does not go to evening school, or any school, while he is working unless he means business. I do not think the examination feature would bother you much if you do not let yourselves get too old before applying for registration. I want you to note that under the new Act, the second examination, will be in the specialized field in which you are most proficient and want to practice.

Under the new Act an additional two years of practical experience would be required if you do not hold a college degree. However, credit for four years of the 12 can be had for field, shop or drawing room experience.

The compulsory examination feature of the new act limits the powers of the Registration Board to the use of a fixed standard, more so than the old Act does which allows more discretion, but at the same time more possibility of abuse, than the proposed new Act. One of the rocks on which so many laws of this nature founder is the granting of wider powers to a Board than the Legislature can grant, or intends to at the time of its passage.

To apply for registration you should write to the Department of Public Instruction, Bureau of Professional Licensing at Harrisburg and ask for the necessary application forms for Engineering Registration. They will send you a copy of the law and instruction sheets together with forms.

To Make Application

I am not a member of the Registration Board, nor do I speak for them. I do know, however, some of the things they want you to do in making application are:

(1) Give them in detail all of the information the blank asks for. Don't try to get by with just a sketch outline of your education and experience. They cannot read your minds. Put down too much instead of too little. They want to know what you have done, not what your employer has.

(2) Don't make false statements. They write to all of your references and have means of checking what you and they may say. You would be surprised how easy it is to question the statements you may make. Somehow even in print, a falsehood stands out. Nor should you be too modest. A man that wants to accept responsibility must have some belief in himself.

(3) They want in particular to know your design experience. Fundamentally it is in the design that the state first looks in trying to safeguard the public. When your seal is on a drawing you are stuck with it.

(4) Choose your references carefully. When you apply for license you are asking for something more than a right to practice. You are asking the Public to trust you for their safety, they and their loved ones. When you ask a man to use his name for reference you are asking him to go moral bond for you. If you have the interests of your profession and the Public at heart you will not ask for license until you are ready to assume that responsibility. Preferably use the names of professional engineers who know of your work, or whom you have worked for or with. Just being a good

fellow does not make you a good engineer.

First Failure Need Not Discourage Applicant

Do not be discouraged if you do not get your registration at the first trial. There is nothing in the law that says you cannot apply again. If you do not get it the first time ask the Board for the reason so you can start to correct your weakness. At the present time we have a very high class Board at Harrisburg. They are also very human. They have a tough job and are doing their best. I know they want to register you if they can, but they also have the responsibility to the State, and don't forget that you and your family are part of the State. The Pennsylvania Society of Professional Engineers are backing them up in their work and want them to be able to do a good job.

Before concluding my talk I want to go back to the beginning where I said license laws such as the Engineers Registration Act create as a "by-product of the one, other effects bearing on the lives of smaller groups, the extent and depth of which cannot always be measured at the time."

What Registration Means

Our time does not permit going into all of these effects even if I were able to evaluate them all. Let us just look at one.

First, it means a class, engineers in private practice, and so called Consulting Engineer at least, necessarily has to be registered to continue to make a living. I don't believe we will disagree on that point. From there on the question of what constitutes the practice of "Professional Engineering" is a little harder to arrive at.

To the State it means the "safeguarding of life, health, and public welfare". In other words, the responsibility of the licensed individual to so protect the Public in the practice of his vocation. But in this day and age where the science of engineering is entering even wider into the complexities of modern life, where does this responsibility end?

The consulting engineer justly says, "why should I be saddled with this responsibility alone when the contractor, manufacturer, utility, government agency, etc. all practice engineering in some form in a greater or lesser degree, or offer to? Is it equitable that I be discriminated against by forced licensure while others with whom I frequently have to compete for my daily bread are not so restricted?" You see where this leads to—do you not?

This is only one phase of the secondary effect of licensure, or regulatory laws. It is only one of the ripples from the stone thrown into the pond. Many others follow.

I stated before, "legislatures do not knowingly create monopolies." They do, sometimes legalize the status of professions.

"Affiliate-Associates"

In connection with the new Registration Act attention was called to the "Engineer-in-Training". The internship, in other words. Realizing some of the difficulties that the young engineer aiming toward registered professional status has to overcome, and with a desire to help him achieve his goal, the Philadelphia Chapter some three years ago set up an associate group of young engineers under its wing and called them Affiliate-Associates. The Affiliate-Associates are really the "Engineer-in-Training" Group. We could not make them full members as they were not registered engineers, and our Society constitution did not provide for such membership. However, we got the group started. The purpose was to help interested engineers toward registration. We do not accept in our Affiliate-Associates men who do not have the qualification or ambition to get registered. Nor do we include those who have reached an age where registration seems improbable.

The Affiliate-Associates have their own organization and elect their own officers. They have they own meetings at which members of the Philadelphia Chapter often address them. One of their number is elected each year to meet with the Board of Directors of the Chapter as an observer, and so they have an opportunity to keep us informed of the views of the young engineer aspiring to registration. They are invited to all the Chapter meetings and frequently have a good deal to say.

At the present time they have a membership of 23. A number of the original group have received their registration within the past year, and several of the others are in the process of making their applications at the present time.

Several others of the State Chapters have followed Philadelphia's lead and have organized junior groups.

Registration Here to Stay

I feel safe in saying to you that Registration of Engineers is here to stay, whether under the old Act, or some form of new one. It behooves all engineers who want to practice engineering in its positions of responsibility, to work for and obtain their registration, at least in the state where they expect to earn their living.

I cannot close without expressing my own, and the appreciation of my Society to your Colonel Blew for the advice he gave you, and for the boost to the National Society of Professional Engineers of which the Pennsylvania Society of Professional Engineers is an integral part, as quoted in your March 1945 copy of "The News" when he said.

"You will do well to stress the desirability for all the Drexel Alumni to apply for registration as rapidly as they can qualify. The possession of registration is one of the best credentials a young engineer can possess. After he has become registered in his home state, he should affiliate with the National Society of Professional Engineers. This organization is growing rapidly and acquiring strength. To my knowledge, it is the only organization in existence that actually is in a position to accomplish anything for bettering the social and economic status of the engineering profession. It does not displace ASCE, AICHE, or any of the other professional groups. It combines engineering of all branches into one cohesive working group working for the betterment of the profession."

Compensations From "Giving"

To that advice I want to add a little bit of my own. Do not approach the matter of registration solely from the selfish end of What can I get out of Registration? Do I have to have it? What good will it do me? But approach it from the somewhat more idealistic and altruistic angle of What can I bring to my profession by registering? What am I doing for it? If you have the qualifications for registration you certainly have something to bring to it. A good many years of living have taught me that in the long run, the greater compensations of life come from giving, rather than from receiving.

What Is a Profession?

By HARRY E. NOLD

Editors Note: We are reproducing this address by Professor Nold because we believe it is timely. We feel it contains a real contribution to the thinking that must be done by Professional Engineers if they are to unite in solving the difficult and multiple problems involved in building a broadly representative overall engineering organization. This talk made a big impression on the gathering of engineers in Quebec where it was first delivered.

We might well introduce our subject by asking, "What is a Profession?" A direct definition is difficult to formulate and we shall, therefore, attempt to explain what it is by taking a look at the qualities or characteristics of a profession.

1. Perhaps the most common approach is to say that a professional man works primarily with his head as contrasted with a skilled artisan or tradesman who depends primarily on manual skills.

Specialized Knowledge

2. A profession must be based upon a body of specialized knowledge not generally available to or understood by the public. Our laws for registering and licensing of engineers recognize this. It is not important how the individual acquires this knowledge, but actually the knowledge required to become an engineer today is so large in amount and so technical that we can almost say that graduation from a recognized engineering college is now a requirement for registration. The present trend, is toward a greater emphasis on the physical sciences and mathematics in engineering education.

3. The practice of a professional man is, to a large extent, individual work, individual responsibility, individual judgment.

4. In the practice of a profession, a man must at all times be in a position to render *uncoerced, independent* judgment. Involved often are confidential employer-employee relationships.

5. A profession must have a code of ethics to which everyone must subscribe as a requirement for recognition of professional stature.

Harry E. Nold

---

6. A profession must render a worthwhile service to society. We need to ask ourselves whether as engineers we are rendering such a service.

Competence Not Enough

There is one other thing about a profession that every engineer must understand. An engineer is not a truly professional man just because he is competent technically. He may be merely a competent and efficient technical mental machine, satisfied to deal with the inanimate and to forget that the inanimate has value only as it is made to serve humanity. Yes, true professionalism is more, much more than merely technical proficiency.

W. E. Wickenden, President of the Case School of Applied Science, Cleveland, Ohio, has expressed this thought much better than I can. Let me read from "THE SECOND MILE", written by Dr. Wickenden in 1944, and printed by the Engineers Council for Professional Development: "Whosoever shall compel thee to go one mile —go with his twain." You will recognize this text from the Sermon on the Mount as a counsel of perfection, good advice in the form of a paradox which emphasizes a profound truth by an apparent denial of common sense.

Every calling has its mile of compulsion, its round of tasks and duties, its code of man-to-man relations, which one must traverse day by day if he is to survive. Beyond that lies the mile of voluntary effort, where men strive for special excellence, seek self-expression more than material gain, and give that unrequitted margin of service to the common good which alone can invest work with a wide and enduring signficance. The best fun of life and most of its durable satisfactions lie in this second mile, and it is only here that a calling can attain to the dignity and distinction of a profession.

"The Individual and the Group"

"Suppose a man were to say, 'I'll be a professional, but I'll do it by myself; I hate organization dues and duties'. One would be tempted to reply, 'So you'll take the head, without the body which nourishes it'. Or suppose another were to say, 'Oh! I'll join all right, but I'll never do anything about it,' to which a fair answer would be, 'So you'll grasp the form and let the substance go.' Full professional life can not be achieved in isolation; like religion and the church, it needs a culture medium in which to grow and flourish.

"Professional status is therefore an implied contract to serve society, over and beyond all specific duty to client or employer, in consideration of the privileges and protection society extends to the profession. To possess and to practice a special skill, even of a higher order, does not in itself make an individual a Professional man. Mere technical training, at any level, is vocational rather than professional in nature.

"The difference between technical training and professional education is no simple matter of length—any difference of two years, or four, or six; nor is it a mere matter of intellectual difficulty. It is rather a matter of spirit and scope. More specifically, it can be described as an overplus beyond the knowledge, however intricate, a man needs to master his daily tasks."

a. Lawrence Lowell in writing about his experienres as President of Harvard University said, "Anyone who sees in his own occupation merely a measure of earning money degrades it; but he that sees in it a service to man-

kind ennobles both his labor and himself."

Developing A Profession

The beginning of engineering skill dates back to ancient times. The germ of professionalism in engineering seems to have originated in the medieval guilds, where, apparently, for the first time the group recognized and exercised its responsibility for the training and development of novices and the testing of their qualifications, and skills for admission to full membership or standing in the guild. Engineering has its roots in the skilled trades and the *limitations* of the *skilled craftsman,* particularly in construction and the design of complicated structures, *due to his lack of knowledge of fundamental physics and mechanics.* Here we have the origin of, the need for and the urge to develop and acquire a specialized body of technical knowledge.

Professional consciousness among engineers, including the recognition that true professionalism is based on technical efficiency plus the assumption of responsibility to serve humanity, and idealism expressed in a code of ethics, is a relatively new development. In fact engineering has not yet reached full professional stature. We are still developing, and developing rapidly.

Planning Necessary

The development of a profession does not just happen. It is planned and results only from the united effort of a closely knit group of individuals. Applying this principle to engineering we can say: the development and maintenance of engineering on a professional level requires an organization or society whose objectives, in part, are (a) to formulate the principles of professionalism as distinguished from technical vocationalism, and (b) *to inspire engineers to want to assume the full responsibilities and implications of these principles.*

Licensing or registration, that is formal legal qualifying of engineers, is closely associated with professional development but while licensing of an individual certifies his technical competence it does not and cannot assure his professional stature. *Service and idealism are in addition to and beyond legal requirements.*

Why Two Societies?

Engineering societies devoted to the development and dissemination of technical information are essential but do not meet the needs of professionalism. Paralleling these societies there must be another society devoted to the development of professionalism and the binding of all classifications of engineers, mechanical, electrical, civil, mining, etc., together into *one* profession.

Professional development must not be subordinated to technical development. While organiaztion is essential, we cannot lose sight of the fact that the profession is composed of individuals and the attitude of the profession is only a composite reflection of the attitudes of many individuals. The true function of the professional society is, therefore, the task of educating and inspiring *individuals* to accept their professional responsibilities. Engineers cannot be mere money grubbers. We must develop ourselves as men—we must demand professional recognition.

The Problem of Licensing

The enactment of laws providing for the licensing of engineers is also the result of the united or group effort. The administration of the laws is placed in the hands of a legally constituted board or council. In a few states the engineers united and worked enthusiastically to have engineering registration laws passed. After the laws were enacted and the administering boards set up they assumed that, from there on, the laws would be automatically administered and enforced and a great wave of enthusiasm for professional development would roll on and indoctrinate all engineers with the spirit of service and fair play so that a real profession would emerge and continue to expand. These groups were sadly disillusioned. They found that the administering boards could do little beyond seeing that only legally qualified engineers were granted licenses to practice. The enforcement of the law to prevent both illegal and unethical practice had to be assumed by the professional engineers themselves through their state society.

In other words, they had to assume an additional unanticipated responsibility in order to make licensing effective. Yes, the professional engineering organizations have ever continuing essential functions which they must assume in order to maintain professionalism a virile and active force and influence.

The Trends

Let me review for you, briefly, what has happened and is happening: (a.) We have, I believe, developed a true conception of what professionalism is. We know that belonging to a profession is both a privilege and a responsibility. Engineers in rapidly increasing numbers are anxious to avail themselves of the privilege, but not all of them yet have sensed and are willing to assume their full professional responsibilities. Too many still want to get, without being willing to give.

(b.) We have no nationally accepted code of engineering ethics. Our laws for the registration of engineers are state laws. Unfortunately, they are not uniform. Some have high standards for registration, others unfortunately, not so high. Some of them require registration for only certain groups of engineers; for example, structural engineers, while others cover all phases or areas of engineering. I am glad to report that the present trend is toward the development of higher standards and uniformity in state laws. All our state laws for registration of engineers are based on the obligation of service to society by the protection of life, health, and property.

The various state boards for the registration of engineers have each adopted a code of ethics to which engineers in the particular state must subscribe as a condition for registration. We are now hard at work on the formulation of a code or canon of ethics which when completed will, we hope, be adopted by all state boards and approved by state and national engineering societies to the end that it may become a real national code of ethics.

Registration Wide-Spread

(c.) We now have registration laws for engineers in forty-seven of our forty-eight states, also in Hawaii, Philippine Islands, and Puerto Rico. We have professional engineering societies in almost all the states. Twenty-four of these state societies have combined in the National Society of Professional Engineers. It is hoped that before many years all of our state professional engineering societies will become integral parts of our national society.

(d.) Through the media of state professional engineering societies combined into and led by the national society, the profession is gradually assuming its true responsibility for the development and maintaining of stand-

(*Continued on Page* 19)

Letters From Readers

Editor,
The American Engineer

Enclosed is a clipping from today's issue of the Dayton Herald regarding conviction of Mayor James M. Curley of Boston in connection with the engineers' group mail fraud case. It is disagreeable to find such an individual preying upon the good name of our profession.

This is another instance where a suitable overall engineering organization energetically maintaining professional standards and ethics could have prevented just one more instance of abuse of the title "Engineer". It is to be hoped that if any engineers were actually mixed up in this mess, the State Registration Boards having jurisdiction will act.

I do not know the full story regarding the engineers group and its fradulent endeavors. Perhaps it might merit a sutiable article in some forthcoming issue of the American Engineer.

James P. Munroe
Dayton, Ohio.

Editor
The American Engineer:

I read the editorial comment in the December 1945 issue of "The American Engineer" with absorbing interest. My enclosed article, "Engineers and World Economy", should explain the reason for my particular interest.

On page 17 of the issue, the editor appeals to the membership to "give the editor a hand". I am not a member of the NSPE but I assume that it would not be too presumptuous for an outsider to offer a comment.

As you can see from my article, I agree with you that the engineers—and other scientists—are peculiarly fitted to solve the so-called "economic" problem. Although we do have the background, the ability is, however only a *potential* ability. In addition to this difficulty, there is also another obstacle to be overcome—and I know from personal experience that both are terribly difficult obstacles.

Engineers are "Fact Finders"

Before going into the nature of these obstacles, it might be well to point out that in the table on page 14 of the December issue, one more difference between the "scientific mind" and the "popular mind" might be added. The scientist is interested only in finding the truth, and will follow it no matter where it may lead him. The non-scientist, on the other hand, is not interested in the truth; he is interested only in proving that his particular creed or dogma is the truth and the only truth. Worse still, he will resist by every means at his command any attempt to disturb his complacent acceptance of the particular dogma to which he has been exposed.

The first difficulty to be overcome is the reluctance of the engineer himself to believe that he is suited to fill the position of "economic statesman"; he is content to live in two worlds and merely gripe that both he and his fellow humans are miserable. The "scientist who let you down" is not the exceptional case; unfortunately, he is in the majority—as I know from experience. So our colleagues must be convinced first that science is not confined to the laboratory only.

"Know-It-All" Attitudes

The second obstacle I have already indicated but in addition, it will be necessary to overcome the reluctance of the non-scientist to admit that "he does not know it all". This applies not only to those "who have met a payroll" but also to their admirers who names are legion.

Here is a job for the NSPE. You ask for help in advancing the status of the Professional Engineer and in promoting the growth of the Society. In general there is only one way of accomplishing any such purpose. It can be accomplished only indirectly; that is, one must do the things which will bring the coveted prestige and advancement as a reward for a job well done. Frankly, with so many organizations asking for members, one often wonders why one should join any of them.

"Human Engineering?"

Specifially, may I suggest that the solution of the "economic" problem —which I prefer to call a problem in "human engineering"—is the most important objective in the world today. In view of your own editorials (and my own article), engineers and other scientists must develop their latent abilities and start a militant campaign at the earliest possible moment—which is now. The time is already late. The fellows who met a payroll have much to learn from us but they have shown us how to "sell". We will have to adopt their methods for "selling" our ideas—call it propaganda methods if you wish.

Obviously, it will be a difficult task. The stakes, however, are tremendous. Nothing less than the future of mankind is involved. By the same token, however, the rewards for success will also be great—not merely for the NSPE or any other comparatively small group —for all mankind.

If you are interested in exporing this subject further, I shall be happy to go into greater detail. I have learned a great deal over a period of many years from attempts to "sell" the ideas touched upon in this letter.

Bernard L. Weiner, P.E.,
New York.

What Is a Profession?

(*Continued from Page* 18)

ards of technical and ethical excellence, enforcement of registration laws, and the protection of the public from the results of incompetent and dishonest practice of our profession.

(e.) We have not yet persuaded all engineers to indulge themselves in the satisfaction of complete service in the 'Second Mile' of Professionalism as described by Dr. Wickenden. We are working toward this end.

Must Inspire Youth

(f.) At this point I wish to call your attention to the fact that one of our weaknesses is that not enough teachers of engineering students in our colleges are assuming their duty to acquaint their students with the full implications of being a professional man and the responsibilities that go therewith.

May I complement you the Professional Engineers of Quebec on the progress you have made toward developing in engineers a realization of their professional privileges and responsibilities and the consciousness that they are members of a truly great and essential profession.

May I plead for a closer cooperation between the Canadian and United States engineers in their mutual efforts to establish engineering as one of the really great professions duly recognized as such by industry, agencies of government, and society at large.

EDITORIALS

National Production 160 Billions

Many prominent persons—businessmen and government officials—have estimated that America's production goal for the post war years should be approximately around $160,000,000,000. At least that volume of production and employment is considered necessary to enable us to carry the burden of the war debts without too much difficulty.

It is obvious that if that level of peace-time production is to be reached and maintained, the total volume of wages and other income will also have to be doubled. It is of course, possible to double both the wage and price levels and thus achieve the suggested high production level in terms of money only. But this would not increase the volume of production or raise the average standard of living of the American people. Nevertheless there appear to be pressures at work on Congress which consider such an inflationary procedure to be the most practical method of eventually paying off our debt. Of course that would be equivalent to repudiating 50% of the value of the war bonds.

The ideal way would be to leave price levels as they are, double the volume of production, and double the total volume of wage and other payments, rather than necessarily the actual wage rates. Such an arrangement would leave the ratio of wages to volume produced about where it is at present.

In theory at least, when we double the total volume of commodities available, the buying power available to consumers may also be doubled, without creating either a price recession, or an inflationary situation. Practically, nobody knows what effect such an increase in the volume of production would have on prices. Nobody knows whether purchasing power sufficient to market all that can produced, will result from the increased production or not. The theory on which our economy is based holds that "purchasing power comes from production," but no economist of note ever stated "how much" purchasing power.

It does seem that if our economic arrangements were put under the careful scrutiny of Professional Engineers, we might get some pertinent facts about such matters that would indicate what can and cannot be done about increasing our production totals.

"V-S Day" (Victory Over Scarcity)

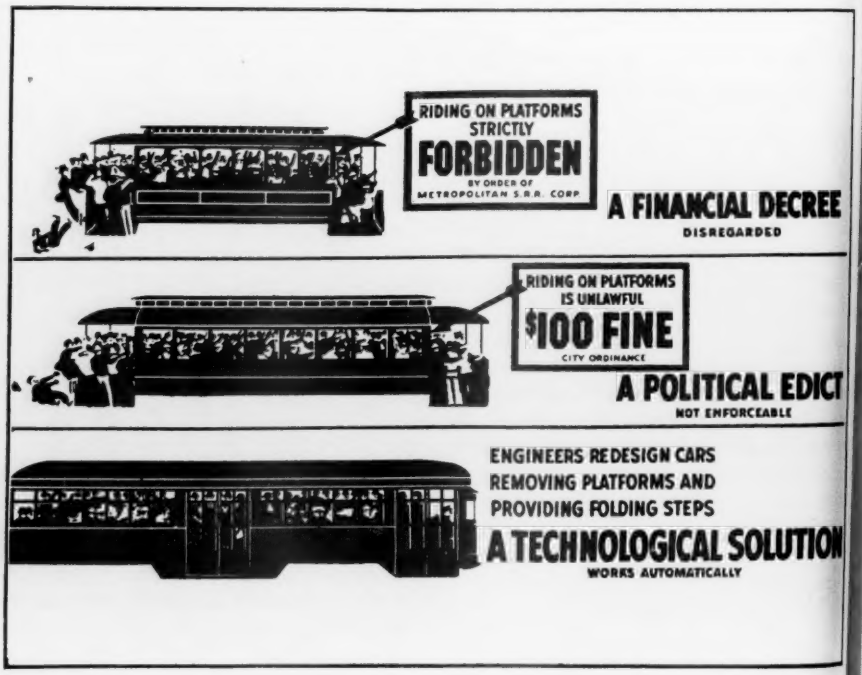
The normal function of the Engineer always operates in the direction of increasing production volume, improving quality, eliminating waste, saving time. The Engineer is the real "Industrialist." The Prime Function of "Industry" as such—as distinguished from financial and other business enterprise controls which may get in the way of the quantity and quality of production—is to *produce to the limit.* Everything that hinders either the volume or the quality of that production, may probably be called "an interference control."

The public of which the Engineer is a part, has its standard of living raised and its life enriched by whatever contributes to the largest practical volume of quality goods and services. The living of the people is cramped by whatever gets in the way of increased production; by whatever causes waste of time, labor or materials, and by whatever interference controls operate to lower the quality of the commodities being produced.

For these reasons, production in volume, and production of quality commodities, is in the public interest. Whatever hinders the most and best production, is contrary to the public interest.

All this is elementary in economics, yet these issues are seldom stated in clear-cut fashion. Probably a great many Engineers have failed to understand that their professional interest, both as engineers and as Americans, is always on the side of more and better production, never on the side of those elements in our economic set-up which restrict production and lower quality. When Engineers put forth their effort to improve production, they are working definitely in the public interest.

Enlightened economists for years have admitted, though somewhat begrudgingly, that there is now in America *no physical obstacle* to prevent the production and distribution of an abundance of all replacable goods and services sufficient for all the needs of



The illustration above typifies all past efforts to conform human conduct with public interest by legal enactments and police power. No matter how just and necessary, nobody pays much attention to "verboten" rules that happen to be inconvenient. The Engineer's solution gets results, without causing anyone to start a revolution. Eventually social leadership must have the wit to engage engineers to solve our more important social problems, which are basically technological.

the American people. Certain obstacles are here, but they are largely in the realm of abstract financial symbols. The interferences are actually a part of our system of economic bookkeeping; they are not due to any serious shortage of raw materials, or of the means of production.

When Professional Engineers take the trouble to understand that the physical welfare of America is in their hands—that the country needs production in far greater quantity and higher quality than ever before, it ought to wake them up. It ought to stir their patriotism, if nothing else, in a way to bring their analytical minds to work on what method can be used to eliminate the unnecessary interferences that slow down production volume. When that investigation is made, it will be found that these interferences are for the most part, hang-overs from a premachine age and set of conditions. These hang-overs are as out of date in a machine age, as whip-sockets would be on an automobile.

May it not be that Professional Engineering organizations need some significant "battle cry"—some slogan to help put their program over? They may need some more vital "crusade," some cause practical enough and dynamic enough to capture the imagination to use their Professional skills in lifting America out of its trend toward recurring wars and depressions, toward peace and a sound and enduring prosperity based on higher levels of production.

It has been suggested that "Victory Over Scarcity"—or "V-S Day" might be the ideal that the Professional Engineer would find worth getting enthusiastic about.

An Absence of Engineers

The Editor of Combustion Magazine has the following very pertinent and timely comment on the habit of our government in excluding Professional Engineers from fact-finding and similar boards for which their training especially fits them. This editorial is from the February issue:

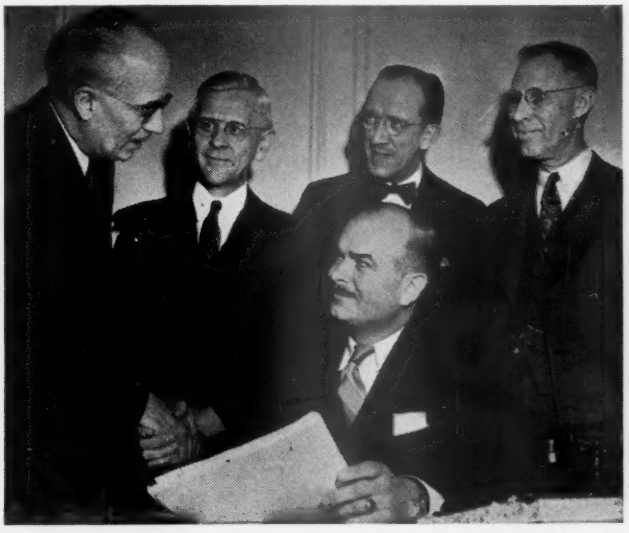
"Looking back over the makeup of the numerous boards created by the Government during the war to handle labor disputes and the more recent fact-finding committees appointed to deal with the current epidemic of strikes, one finds almost invariably, that public's interest have been drawn from the members selected to represent the the legal profession or college faculties. The absence of engineers is marked. Yet it would seem that an engineering approach to such problems might be most helpful.

"The engineering profession has long been criticized, from within, for its failure, individually and collectively, to take a more active part in affairs of public concern. While it has achieved high prestige and recognition from the Government and the general public in the technical field, and this was further enhanced by its contribution to the war effort, engineers are usually passed over when the broader social or economic problems come up for consideration.

"It may be that, on the subject of labor relations, Government officials are inclined to regard engineers as imbued with the management viewpoint; but surely there are enough unattached engineers of recognized independence from among whom selections could be made to insure impartial consideration. It is believed that the public's interest would be as safe in their hands as in the hands of lawyers and professors, and that the analytical approach, charcteristic of engineering training, would offer a constructive solution in many cases."

One of the dangerous after effects of war is that it causes many people to become convinced that compulsion is the only way to create a framework of desirable innovation.

The National Housing Authority says we need to build 1,260,000 nonfarm dwelling units a year for 10 years to catch up and supply normal demands for an increasing population. The annual average is 475,000 over the last 40 years, and there won't be that many in 1946.



Prominent Professional Engineers at the Ohio State Society Convention

Left to Right: W. R. LaDue, convention chairman; Dr. H. E. Simmons, president University of Akron; Ritchie Lawrie, Jr., President NSPE, and H. E. Nold, past president NSPE.

President Lawrie, of NSPE, congratulates A. C. Neff, new president of OSPE. Left to right: J. R. Shank, J. D. Coleman, and D. W. Converse.

MEMBER STATE SOCIETIES N.S.P.E. — *Officers and Directors*

Member	President	Secretary	National Director
ARKANSAS	DAN D. RICKETTS 219 Terminal Warehouse Little Rock, Arkansas	R. M. NEWSOM Arkansas Highway Dept. Little Rock, Arkansas	FRED J. HERRING Arkansas Highway Department Little Rock, Arkansas
CONNECTICUT	HERBERT H. SCOTT-SMITH P. O. Box 288 Waterbury, Conn.	FRANK E. KLEIST 126 Lockhart Ave. Waterbury, Conn.	JOHN W. SHALLENBERGER 886 Main St. Bridgeport, Conn.
D. C.	FREDERICK W. HILL 6440 Barnaby St., N.W. Washington, D. C.	MAJ. ELMER C. KAUTT 1033 Patrick Henry Dr. Arlington, Va.	HERMAN F. LAME Westchester Apts. Washington, D. C.
GEORGIA	CARL W. EVANS 1020 Grant Building Atlanta, Ga.	RAY L. SWEIGERT Georgia School of Technology Atlanta, Georgia	ROY S. KING Georgia School of Technology Atlanta, Georgia
ILLINOIS	GEO. H. ANDERSON Annex Building Herrin, Ill.	H. E. BABBITT 204 Engineering Hall Urbana, Ill.	W. A. OLIVER 201 Engineering Hall Urbana, Ill.
INDIANA	M. W. CAMERON 3632 Guilford Ave. Indianapolis, Indiana	L. M. CONDREY, Ex. Sec. 3436 North Temple Avenue Indianapolis, Indiana	BEN H. PETTY 707 Crestview Place West Lafayette, Ind.
KANSAS	MOLOY QUINN City Office, Clay Center, Kans.	HAROLD H. MUNGER Kansas State College Box E Manhattan, Kansas	C. H. SCHOLER Kansas State College Manhattan, Kansas
MARYLAND	CHARLES A. MOHR 1716 Windemere Ave. Baltimore, Md.	ROBERT ANDREW NORRIS Springfield State Hospital Sykesville, Md.	RUSSELL B. ALLEN 4610 Hartwick Rd. College Park, Md.
MASSACHUSETTS	WILLIAM F. RYAN Stone & Webster Co. 49 Federal Street, Boston, Mass.	ALVIN S. MANCIB P.O. Box 53 West Somerville, Mass.	RAYMOND C. NEWTON Babson Park 57 Massachusetts
MINNESOTA	H. E. McWETHY 1, S. 11th Street Minneapolis, Minn.	RICHARD R. PRICE, Ex. Sec. 1010 Guardian Building Saint Paul 1, Minnesota	S. L. STOLTE 1437 Marshall Avenue Saint Paul 4, Minnesota
			HIBBERT HILL 4512 Wooddale Ave. Minneapolis, Minn.
MISSOURI	C. G. ROUSH 101 W. 11th St. Kansas City 6, Mo.	H. J. BRUEGGING P. O. Box 365 Jefferson City, Mo.	BRUCE WILLIAMS P.O. Box 264 Joplin, Mo.
			C. GEORGE KRUEGER 85 Van Reypen St. Jersey City, N. J.
NEW JERSEY	DANIEL M. KRAMER 107 So. Gerard Street Woodbury,N. J.	FREDERICK D. BRAUN 27½ No. Mass. Ave. Atlantic City, N. J.	HUGH C. CLARKE 97 Bentley Ave. Jersey City, N. J.
			JOS. M. CERRETA 163 W. Colfax Ave. Roselle Park, N. J.
NEW YORK	JOS. A. BRADY 39 Osborne St. White Plains, N. Y.	ERNEST F. FOX 1941 Grand Cent. Term. New York, N. Y.	WM. H. LARKIN c/o B. F. Sturtevant Co. 420 Lexington Ave., N. Y.
			LELAND R. POST % N. Y. Tel. Co. Binghamton, N. Y
OHIO	A. C. NEFF 218 Auditorium Bldg. Cleveland, Ohio	LLOYD A. CHACEY, Ex. Sec. 63 South High Street Columbus, Ohio	J. S. KENNEDY 2945 Lee Road Shaker Heights, Ohio
OKLAHOMA	C. S. WORLEY 410 Commerce Exchange Bldg. Oklahoma City, Oklahoma	ROGER L. FLANDERS 410 Commerce Exchange Bldg. Okla. City, Okla.	CHARLES S. LARKEY Box 521 Tulsa 2, Oklahoma
			LeROY F. CHRISTMAN 101 Endlich Ave., Mt. Penn. Reading, Penna.
PENNSYLVANIA	LeROY F. CHRISTMAN 101 Endlich Ave., Mt. Penn Reading, Penna.	RUSSELL S. CONRAD 29 S. 3rd St. Harrisburg, Pa.	J. J. PAINE 1430 N. Euclid Ave. Pittsburgh 6, Pa.
			RAY M. FULLER 560 No. 16th St. Philadelphia, Pa.
PUERTO RICO	C. CALOR MOTA University of Puerto Rico Mayaguez, Puerto Rico	ANGEL SILVA, Ex. Sec. Dept. of the Interior Santurce, Puerto Rico	SALVADOR QUINONES 20 East Leland Street Chevy Chase, Maryland
RHODE ISLAND	CHAS. E. BLAIS 185 Princeton Avenue Providence, R. I.	VINCENT DiMASE 201 Dean Street Providence, Rhode Island	DANIEL C. CARGILL Box 257, RFD 2 Valley Falls, R. I.
TEXAS	JAMES P. EXUM 704 Texas Avenue Austin, Texas	R. S. GUINN 504 Ewell Nalle Bldg. Austin, Texas	W. M. ANDREWS Union Nat. Bk. Bldg. Houston, Texas
			HARRY K. RUPP c/o Penna. Shipyards Beaumont, Texas
			ROBERT COLTHARP 401 E. 31st Street Austin, Texas
VIRGINIA	C. GRADY CATES 417 Arlington Rd. Roanoke, Va.	C. G. MASSIE 4030 Fort Drive Lynchburg, Va.	J. FRANCIS SETTE 4701 Connecticut Ave., N. W. Washington, D. C.
WASHINGTON	JOHN O. JOHNSON 1626 Calif. Ave. Seattle 6, Wash.	DeWITT C. GRIFFIN 717 Lloyd Bldg. Seattle, Wash.	H. C. GLAZE Paulsen Building Spokane, Wash.
WEST VIRGINIA	P. K. PIERPONT 712 College Ave. Bluefield, W. Va.	ROSS B. JOHNSTON, Ex. Sec. Kanawha Hotel Charleston, W. Va.	T. J. JACKSON 1203 Augusta St. Bluefield, West Virginia
WISCONSIN	EDWIN W. SEEGER P. O. Box 464 Milwaukee 1, Wis.	O. J. MUEGGE 656 Crandall St. Madison 5, Wisconsin	L. E. PETERSON 312 E. Wisconsin Ave. Milwaukee, Wisconsin

Kindly report any errors or omissions to the Editor.

National and State Society News

Ritchie Lawrie, Jr.

President Lawrie Speaks to New York Engineers

President Ritchie Lawrie, Jr., has accepted an invitation to address a select group of engineers of The Austin Company, in New York City, on the afternoon of May 10th. The occasion of an "Advanced Practice Forum" meeting sponsored by the management of the Austin Company. The Forum meets at the Hotel Ambassador, New York. Mr. Lawrie was asked to speak to this same group on December 6th, 1945, but was obliged to decline because of conflict with the time of Annual Meeting of the National Society of Professional Engineers, held in Cleveland and starting on that same day.

Mr. Lawrie will be the guest of officials of the Austin Company at a dinner meeting in the evening of May 10th.

NSPE Representation on Engineering Joint Council

Mr. Ritchie Lawrie has announced the appointment, as representatives from the National Society of Professional Engineers to the Engineers Joint Council's Committee's on the Economic Status of the Engineers, as follows:

Mr. John S. Kennedy, Portland Cement Association, Shaker Heights, Ohio, to the sub-committee on Survey of Employer Practice Regarding Engineering Graduates.

Mr. William F. Ryan, Stone & Webster Engineering Corporation, Boston, Mass., to the sub-committee on Survey of Engineering Profession.

Mr. Alex Van Praag, Jr., Warren & Van Praag, Inc., Decatur Ill., to the sub-committee on Collective Bargaining by Engineers in Professional Work.

In announcing that these appointments had been accepted, Mr. Lawrie emphasized the fact that great care had been given to the selections and appointment of the representatives. He is very much pleased that these outstanding engineer members of NSPE have agreed to serve in this way.

Coming Events

May 3-4, Annual Convention, New York State S.P.E., Hotel New Yorker, New York City.

Oct. 27, Meeting NSPE Board of Directors, Hotel Statler, St. Louis, Mo.

Oct. 28, Joint meeting of NSPE Board of Directors and the NCSBEE Board of Directors, Hotel Statler, St. Louis, Mo.

Dec. 6, Third Annual Meeting, Georgia Society of Professional Engineers, Atlanta-Biltmore Hotel, Atlanta, Ga.

Dec. 6, NSPE Board of Directors Meeting, Atlanta-Biltmore Hotel, Atlanta, Ga.

Dec. 7, NSPE Annual Meeting, Atlanta-Biltmore Hotel, Atlanta, Ga.

NOTE: Please keep the Editor of the American Engineer informed of all planned State Society meetings, with any available advance information as to speakers and their subjects. When any National Officer is scheduled to speak anywhere in your State, let us have the details as early as possible.

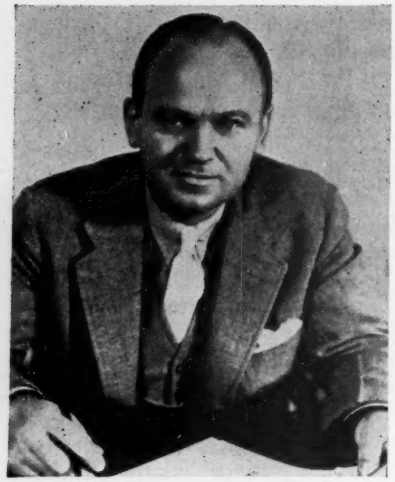
It is our present policy to print as much State and Chapter news as space will permit, provided the items have some National interest. This includes news about State or Chapter membership activities, meetings at which prominent speakers appear, and of course any expressions by engineers relating to the policies of the NSPE, the need for an overall engineering organization and any other constructive comment which will contribute to the organizational thinking of our readers in all localities.

At present our closing date is the 5th of the month for the month previous to date of issue. The cooperation of publicity Chairmen and others is keenly appreciated, by the Editor.

Columbus, Georgia Receives Charter

Columbus Chapter of the Georgia Society of Professional Engineers receives its official charter. In the picture, left to right, Cherry L. Emerson, dean of engineering, Georgia School of Technology, and second vice-president of GSPE; Carl W. Evans, editor of ELECTRICAL SOUTH Magazine, and president of GSPE; Col. M. J. Blew, Sanitary Corps, and chairman of the GSPE Registration Committee; Stephen C. Hale, chief engineer, Fulton Bag and Cotton Mills, and Southern District vice-president of NSPE; and J. F. Caldwell, division engineer, Georgia Power Co., and president of the Columbus Chapter, GSPE.

Minnesota Engineers Stage Mammoth Exposition and Convention



S. L. Stolte
Newly elected president of the Minn. Federation of Engineering Societies.

Some 6,000 Minnesota professional engineers and 80,000 residents of Minneapolis and St. Paul participated in the Victory Conference and Engineering Exposition staged in Minneapolis February 20-23, under the auspices of the Minnesota Federation of Engineering Societies. The Minnesota Association of Professional Engineers is one of the Federation's fourteen societies.

Emphasis was placed on the leading role the professional engineer must take in the progress of his community, his country and the world.

S. L. Stolte, national director for MAPE to NSPE, and a first vice president of the Minnesota Federation of Engineering Societies, was elected Federation president. Paul R. Speer, St. Paul; H. E. Farnam, Duluth, H. G. Nicholson, Minneapolis, were elected vice presidents, and John L. Wilson, St. Paul, treasurer.

Some 800 members of MAPE attended the conferences. They elected as new officers: A. M. Kircher, Mankato, president-elect; M. G. Brataas, Rochester, vice president; T. S. Thompson, Minneapolis, secretary; W. S. Cockroft, St. Paul, treasurer; Hibbert Hill and S. L. Stolte, Minneapolis, national directos, and H. R. Bray, Worthington, H. C. Jahnke, Brainerd, and Walter H. Wheeler, Minneapolis, NSPE delegates. N. T. Rykken, Minneapolis, retiring president, was named Federation director, with R. C. Deegan, Mankato, alternate. H. E. McWethy, Minneapolis, who has been MAPE's president-elect during the past year, assumed his duties as president.

The engineers were told that their profession nationally has a choice between "united we stand" or "divided we fall."

Ritchie Lawrie, NSPE president, warned: "The big postwar problem of the engineering profession is whether it wants to be a profession. We not only must develop a professional code of ethics but must prepare ourselves to see that the code is effective."

He pointed out that at present there are more than 40 engineering societies, each of which is engaged in consideration of problems peculiar to its field of endeavor.

"Obviously," he pointed out, "no one of these societies, nor any one group of them, can speak for the entire profession. If we are to function as a profession, we must have an all-inclusive professional society."

"What the engineers need," he asserted, "is an organization comparable to the American Medical Association. Only then could we make ourselves vocal, clarify our position and undertake to solve our common problems."

"Engineers should enter Congress, State legislatures and City councils and make their presence felt," he told the conference. "At present most legislative bodies are dominated by lawyers and, with all due respect, what do they know of technical or engineering problems?"

Mr. Lawrie said the first step in obtaining a voice in policy matters is the individual education of engineers themselves in such fields as political science, economics, government and philosophy, in addition to their own specialties.

Second step he advised is growth of a national group of professional engineers similar to the National Bar Association for lawyers or the American Medical Association for physicians.

"Licensed professional engineers in all branches should become individual members of the national group," he said. "Only thereby can their voices and counsel be heard. We can't expect a revolution overnight. Our group is only eleven years old, as compared with very old groups in other professions. Progress must be evolutionary and must come as much from greater knowledge within ourselves as from organization among ourselves."

ILLINOIS

Plans are under way to organize a Chapter of the Illinois Society of Professional Engineers in Madison County.

The February issue of the "Illinois Engineer" lists the names of 23 new members and 42 new applications not yet acted on.

In a letter to the "Illinois Engineer," Mr. Alex Van Praag, Jr., vice-president of the NSPE, writes in part as follows: "I am strongly of the opinion that the (Illinois) Society has made an error in two respects with reference to the Fee-Schedule, etc. I feel strongly that there should be no index established and no attempt to vary the fee from time to time with changing markets. This only tends to destroy the fixing of a minimum schedule. It makes the schedule quite unworkable. The men who are to be influenced by this schedule will frown upon its uncertainty. It is difficult for them to understand variable scales. They want to know the fixed schedule.

"I feel equally strong about the elimination of the separate schedule covering fees and salaries for public employees. Regardless of whether or not we like to see a difference in fees or salaries paid employees in public and in private work, there has always existed a differential. We cannot wipe out the differential with a single stroke. It is here and we should recognize it. We are somewhat unrealistic when we refuse to recognize the facts as they are. We should gradually modify the base by education of the people concerned. . . ."

Mr. C. J. McLean, immediate past president of the Illinois Society of Engineers, has been transferred from the Dixon offices of the Illinois Northern Utilities Company, to Chicago where he will be General Hydraulic Engineer for the Public Service Company of Northern Illinois.

The first certificates have been issued for registration of professional engineers under the new Illinois Law. So far about 2500 applications have been approved by the committee, about an additional 100 applications are on hand, many of which require investigations, owing to incomplete or careless filling out of the application blanks. It is surprising that this should happen with people expecting to be classified as professional engineers. So

far very few applications have been denied.

An examination will be held this year for those desiring to get the registration by examination instead of under the "grandfather rule" in order to qualify for reciprocal registration in other States.

Considering that two years ago nearly 10,000 applications were made under the law that was called unconstitutional, the present 3500 applications indicate that they come slower now than could be anticipated.

INDIANA

"Ole" Johnson, former president of the Indiana Society of Professional Engineers, recently resumed his duties as engineering assistant to George A. Kuhn, chairman of Mayor Robert H. Tyndall's Post War Planning Committee. He will co-ordinate the municipal projects such as those involving the proposed city-county government building, off-street parking and thoroughfare improvements, with those of county, state and federal agencies.

During the last six or eight months there has been a rather remarkable number of applications for registration presented to the Board of Registration for Professional Engineers. Many of the younger engineers who have been in the service have returned to civilian life and see the need of their being recognized in the professional world. We in Indiana are making an effort to have effective co-operation between the Board and the Society, to the end that we may be in a position to approach a new registrant immediately upon his receiving his registration certificate. Increased registration does not directly help the Society unless these engineers become members.

In a recent message of Greetings to the Indiana Society of Professional Engineers, President Ritchie Lawrie, Jr., president of the NSPE, said in part: "Policies adopted by our Board of Directors at the recent Cleveland meeting usher in a new era for our National Society of Professional Engineers . . .

"At any time you may have a suggestion that will be helpful, I shall be pleased to hear from in order that I may be of greater service in the administration of our problem in an effective manner."

MISSOURI

From a mere handful of members, the Missouri Society of Professional Engineers has grown to a present membership of approximately 1200 and nine State Chapters scattered throughout the state.

Our goal should be to obtain all registered engineers and all other qualified engineers in the state as members. Such a large membership would exert a great influence throughout the state which would benefit every member individually. Nominal dues from each member should supply sufficient funds for an active, full-time secretary-manager and office staff.

Mr. Bruce Williams, of Joplin, the 1945 president of the Missouri State Society, and now a National Director of the NSPE from Missouri, has taken his official oath as a member of the State Board of Registration for Architects and Professional Engineers. He attended his first meeting as a member of the Board of Jefferson City on February 15th.

Mr. John R. Griffin, Senior Engineer in charge of Engineering, with Transcontinental and Western Air, Inc., gave the members of the Western Chapter, Kansas City, an insight into the engineering problems involved in the operation of an airline at a recent meeting of that Society. T.W.A. recognizes the fact that engineers are valuable to an operating company because their ideas and techniques result in increased gross revenue and more net profit from current revenue. If Engineers everywhere could get this point over successfully with management, the compensation problems of engineers would be well on the way to a satisfactory solution. This looks like another job for NSPE to outline the modus operandi.

NEW YORK

More than 200 engineers attended the January meeting of Zone 5, for Albany, Schenectady and Rensselaer Chapters, at Albany. Large delegations came from Troy and Schenectady, with members of the Albany Chapter present "en masse." President Brady and Executive Secretary Frank Duck, of the State Society were distinguished guests and each gave short talks. The main speaker was Major-General Farrell, now Chief Engineer of the N. Y. State Department of Public Works. He discussed the atomic bomb.

In the March meeting of the Erie Chapter, there was a spirited discussion of Engineers fees and salaries and how they can be related to the higher income level fix for labor and management. The suggestion was made that Professional Engineers should receive 15% to 20% increase over the existing published minimum rate. How this idea can be "sold" to management was one question raised. Someone suggested that perhaps the good old "Golden Rule" can be brought out, dusted off and get results through the cooperative effort of the Chapter, State and National Societies. It was agreed that the Professional Engineers are entitled to a better deal.

Engineer-President Talbot has appointed three new and important Committees: Engineer-in-Training, Labor Relations Committee, and Cooperate with Industry Committee.

The Onondaga Countery Chapter will henceforth be known as the "Central New York Chapter," and will include the following counties under Section 1, Zone 7: Oswego, Herkimer, Onondaga, Cortland, Wayne, Madison, Oneida, Cuyuga and Seneca.

The Erie Conth Chapter heard a very interesting and informing address by Edward J. Nunan, Treasurer, Niagara Frontier Planning Association, on March 18th. The subject was: "The New York State Thruway as it Affects the City of Buffalo." There was a dinner preceding the meeting.

The Chautauqua-Cattaraugus Chapter heard Colonel W. E. Lorence, District Engineer of Pittsburgh office, U. S. Army Engineers on March 14th. Col. Lorence discussed flood control problems on the upper Alleghany River. The meeting was at Jamestown.

The New York County Chapter records with sorrow the passing of William H. Yates, one of the Chapter's Founders and its first president. His leadership and energy in the early years of the Chapter, his loyalty and wise counsel in later years, have contributed much to the Growth of the Chapter. His memory will live in the respect and affection of his many friends and associates in the Profession.

Queens County Chapter of Professional Engineers held its Annual Dinner and Meeting on January 24, 1946, with 85 members and guests attending. Eng. Andrew K. Johnson, Engineer

of Queens Highways, acted as Master of Ceremonies. Colonel George H. Burns, Deputy Commissioner of New York City Hospitals and Eng. Martin Nelson, Assistant Engineer of Queens Sewers prologued the evening of speakers.

The Executive Secretary of N. Y. State Society, Mr. Frank J. Duck, explained the proposed activities for economic betterment of the engineer and to increase Society Membership. The outgoing Chapter President, Eng. Wm. C. Kochendoerffer, received a scroll in recognition of his untiring services. He in turn thanked the members for aiding his administration.

Eng. Joseph Brady, President of N. Y. State Society, commented that the paper "Engineer in Matters of Law" by Eng. Kochendoerffer is the finest report heard by the Society for years. Eng. Brady explained that the State Society was moving along very well shown by such improvements as getting legislation passed and the completion of Schedule of Minimum Fees and Salaries, particularly those paid by Housing Commissions of New York State and its Municipalities.

The most popular installing officer in Queens, the Hon. Borough President, James A. Burke, installed the Chapter's officers for 1946. Eng. Charles B. Molineaux, the incoming President, urged the Chapter "to be the most effective Chapter in the Society, not necessarily in number but in the way we do things."

The evening's principal speaker, Mr. James A. Lundi, a prominent industrialist and civic leader, spoke of "The Engineer in Queens" as having a clear vision of something to be done, then planning how it can be done and executing these plans based on this vision. An excellent expression of any engineer.

Mr. Arthur A. Johnson, a nationally known contractor, and Mr. Maurice Fitzgerald, Commissioner of Queens Public Works, terminated the program of diversified and enlightening speeches.

The Secretary of the NYSSPE reports that the increase in the State dues has resulted in only a negligible number of resignations.

Clayton A. Miller, Chairman of the NYSSPE Membership Committee, has appointed 20 members to his committee.

The Bronx County Chapter has set the Chapter dues at $6. With $10 for the New York State Society, and $4 to the NSPE, the total dues are $20 for 1946.

OHIO

On February 21, the Eastern Society Chapter held its joint meeting with the Panhandle Chapter at Wheeling, West Virginia. The meeting turned out to be a big success.

We had an attendance of 85 and our speaker of the evening, Mr. James Hyslop, was considered the best we have ever had. His subject, "The Possibilities of Industry in the Ohio Valley." At the close of the meeting our membership chairman met each engineer as he was leaving and handed him an application blank; also a "brochure," The Professional Engineer and his Organization.

The Cincinnati Chapter of the Ohio Society of Professional Engineers is considering pooling the voluntary contributions to the NSPE emergency fund, sending the total to the Washington office.

OKLAHOMA

The Oklahoma Society of Professional Engineers held its 11th Annual Convention at the Tulsa Hotel in Tulsa, Oklahoma, on January 11th and 12th. This was the most enthusiastic meeting held for some years. Registration of approximately 200.

Committee meeting of 10 districts was held and a forum luncheon by the Chamber of Commerce at the Tulsa Club.

In the afternoon the ladies were entertained with bridge while the Society held their Director's meeting at which time the election of officers for the ensuing year was held. Engr. Chas. S. Worley of Oklahoma City was elected President, L. L. Dresser of Tulsa 1st Vice-President, Frank J. Meyer of Oklahoma City 2nd Vice-President, Chas. S. Larkey, of Tulsa was re-elected National Director, Prof. R. L. Flanders of Stillwater, Secretary, J. M. Gayle of Oklahoma City re-elected Asst. Secretary, and Prof. J. F. Brookes of Norman Treasurer. The office of the Society will continue at 410 Chamber of Commerce Building, Oklahoma City.

Engr. Worley has been quite active in all the activities of the Oklahoma Society, he being Chief Engineer and Purchasing Agent of the Consolidated Gas Utilities of Oklahoma City.

S. L. Stolte Speaks

In the evening a banquet was held and Engr. S. L. Stolte of St. Paul, Minnesota, who is Chairman of the 1946 Budget Committee N.S.P.E., Member of the Executive Committee and National Director of the Minnesota Association of Professional Engineers, spoke on the subject of "Unity in the Engineering Profession". This was a most interesting discussion and the engineers were highly pleased.

Saturday, January 12th, a breakfast was given for the Presidents and Delegates of the Founder Societies after which a business session was held and several important matters decided upon. One was employment of a full-time Secretary; two—the publishing of a monthly magazine; three—preparation for engineers in training. The following were elected Directors: Roger L. Flanders, Fred G. Fellows, W. H. Carson, E. J. McConnell and Don McBride.

The ladies were entertained at luncheon at noon and a bridge in the afternoon, while the engineers were guests at a luncheon at the Tulsa Engineers' Club, the speaker being Colonel Philip S. Donnell, Dean of Engineering, A. & M. College at Stillwater, his subject being "Some Phases of our Foreign Relations."

In the afternoon joint meetings were held of all of the groups at which time presentation of A. Gordon Lormier, A.I.A. Chief of the Bureau of Architecture, Dept. of Public Works of New York City.

In the evening of January 12th a banquet was held in the Crystal Room of the Mayo Hotel when all groups were guests. Chairman, Engr. C. A. Stoldt, Toastmaster, Architect A. M. Atkinson, Address of Welcome by Lieut. Governor James E. Berry, the Speaker being H. A. Dick, President of The Associated General Contractors of America, Inc.

PENNSYLVANIA

"And, so in my farewell address, I urge you to strive toward a larger and better Pennsylvania Society of Professional Engineers and to let the interests of that Society come ahead of what might seem to us the rights of our Chapter. By the same token, we must let the interests of our National Society come ahead of the rights of our State Society. We must be guided by the principle of the greatest good to the largest number.' "—From the address of Mr. Samuel Baker, Past President of the Pennsylvania Society of Professional Engineers.

John U. Schroyer, secretary of Highways of the Commonwealth of Pennsylvania, was the guest of the Harrisburg Chapter of Professional Engineers at its February meeting. He discussed some of the interesting engineering features of highway construction program in Pennsylvania.

Ritchie Lawrie, Jr., President of NSPE, in addressing the Harrisburg Chapter meeting in January, stressed the importance of full participation in National Society affairs. He also outlined the operation of NSPE with regard to expenditures and the necessity for increased funds from now on.

The Harrisburg Chapter has voted an amendment to its By-Laws increasing the schedule of dues for engineers to $12 per year; Surveyors, $8.00 per, and Affiliates, $5.00 per year. Balloting showed a heavy majority in favor of this increase in dues.

Charles S. Leopold, consulting engineer of Philadelphia, and a member of the Industry and Power editorial Advisory board, has been elected president of the American Society of Refrigerating Engineers. Mr. Leopold is a valued member of the Philadelphia Chapter of the Pennsylvania Society of Professional Engineers.

The January Conventions of the Pennsylvania Society of Professional Engineers resulted in 108 registrations.

Reading was declared winner in the membership contest for award of the Ritchie Lawrie Shield on a photo-finish with Harrisburg. Erie placed third in a contest which everyone ran more than 100 per cent of quota.

The following resolution was presented to the Pennsylvania Convention: BE IT RESOLVED, that the Harrisburg Chapter of the Pennsylvania Society of Professional Engineers recommends to its parent Society that an investigation be made by the said parent Society into the salary rates and wages as paid by the Commonwealth to Professional Engineers, Engineers-in-Training and Technicians, and that action be taken by said parent Society to bring wages and salaries as outlined under the "Administrative Code of the Commonwealth of Pennsylvania," to a level commensurate with present day living standards and in accordance with the Schedule of Salaries and Wages as prepared and approved by the Pennsylvania Society of Professional Engineers.

President of NSPE Addresses Penna. Engineers at Banquet

During the past eleven years we have gone a long way in our professional effort, but we have a long way to go. Some members appear to be impatient and believe that our progress should be faster. To them we say —the infant learns to creep before he begins to walk, and we remind them that we have an infant organization. Other members believe that we are moving too fast and that we should maintain a "status quo," awaiting membership developments. To them we say there is no such thing as a static position—either we move forward to the best of our abilities, or we retrogress.

As I see the situation, the N. S. P. E. has reached an important cross-road in its forward progress. It has reached a point where it will either be universally recognized as the overall engineering society for the whole profession, or it will continue, as in the past, in a half-way manner.

This is the time for the membership to have faith in its leadership and this is the time for the leadership to have confidence in the membership. This is the time for vision—for courage, by an aggressive leadership, supported by a loyal membership, in effectuating a great professional movement. This is the time for a professional consciousness and for loyalty to the profession throughout its entire membership.

Here in Pennsylvania we have a splendid organization, second to none as State Societies go, and we have the elements as required to insure a progressive organization equipped to represent the engineering profession throughout the state in an adequate manner. Let us press on to the high mark of our calling. As a final thought I leave with you the following quotation from Emerson:

"The Turn of the Tide"

"The line between failure and success is so fine that we scarcely know when we pass it—so fine that we are often on the line and do not know it. How many a man has thrown up his hands at a time when a little more effort, a little more patience, would have achieved success.

"As the tide goes out, so it comes clear in. In business sometimes, prospects may seem darkest when really they are on the turn. A little more persistence, a little more effort, and what seems hopeless failure may turn to glorious success.

"There is no failure except no longer trying. There is no defeat except from within, no insurmountable barrier save our own inherent weakness of purpose."

TEXAS

The number of members of the Texas Society of Professional Engineers who were in good standing as of January 30th, 1946, was 1216. This is an increase of 57 since the count on November 23, 1945. The present total is approximately 50% of a conservative estimate of the maximum membership to be expected in the near future.

Work on the canvass for funds for the operation of the Texas State headquarters office, with the services of a full-time executive secretary, has progressed to a point where success is assured. As of January 31, 1946, the amount paid totals $9,011.75. The total amount pledged is $12,945.50.

Mr. James P. Exum, the newly elected President of TSPE, has this suggestion to Texas Chapters of the Society: "Publicity properly used can be a valuable resource. We should see to it that effective use is made of the local press and other sources of publicity to forward and publicize our objectives." . . . The Chairman of the Publications Committee has a real job on his hands. He deserves your unstinted support in furnishing copy. . . ." That is a suggestion that can be taken to heart by all Chapters everywhere.

WASHINGTON

The Spokane Chapter of the Washington Society of Professional Engineers has elected the following officers for 1946:

State Trustee: C. J. Chaffins, Spokane County Courthouse, Spokane, Washington.

Chapter President: H. C. Glaze, General Electric Co., Paulsen Building, Spokane, Washington.

Chapter Vice-President: L. L. Wartes, Empire Engineering Co., Empire State Bldg., Spokane, Washington.

Chapter Secretary-Treasurer: H. A. Stingle, The Washington Water Power Company, P.O. Box 1445, Spokane, Washington.

The chairman of the membership committee announced that on June 11, 1945, the Spokane Chapter had a paid up membership of six and at the present time this has grown to well over thirty.

WEST VIRGINIA

The West Virginia Society of Professional Engineers reports a paid up membership as of February 1, 1946, of 211. There are 709 registered engineers in the area eligible for membership.

During the past few years, and more particularly in the immediate past, it has been evident that governing bodies of political subdivisions have been going out of the state of West Virginia to secure engineering services on public work projects.

In an effort to better inform the public in regard to our own engineers, the Charleston Chapter of the W. Virginia Society of Professional Engineers is seeking certain information to be used in preparing an exposition of facts to be presented to prospective users of engineering services.

More than a hundred West Virginia engineers have been contacted by a special committee from Charleston, with the request that a comprehensive statement of reasons be prepared why local engineers should be employed on public work projects in this state.

It is the hope of the committee that every engineer will make prompt reply in order that the best possible use of the material may be made.

Our Emergency Fund

The March issue of The American Engineer listed the names of Professional Engineers who wrote letters to President Ritchie Lawrie, along with their contributions to the Emergency Fund. This was done because of the impracticability of answering each letter individually, and because Mr. Lawrie wished these correspondents to know he has read their communications and that he much appreciates their many expressions of encouragement.

Since the closing of the forms for the March issue, letters with contributions have come in from the following:

Albert J. Nesbitt, Philadelphia, Pa.
A. P. Coons, Lebanon, Missouri.
Straiton Hard, Atlanta, Ga.
George B. Townsend, St. Paul, Minn.
E. S. Butler, Houston, Texas.
Hans B. Lippelt, Ozone Park, N. Y.
T. Bloecher, Jr., Baltimore, Md.
G. J. Johnson, Minneapolis, Minn.
Samuel Carr, New York, N. Y.
Anatole R. Gruehr, New York City
Arthur Greenfield, New York.
Wm F. Kennedy, Scarsdale, N. Y.
Ellis L. Lavine, New York.
A. P. Kuranz, Waukesha, Wisconsin.
Joseph A. Brady, New York, N. Y.
Harry C. Claeys, Brooklyn, N. Y.
D. K. Hutchcraft, Olean, N. Y.
George D. Hayes Co., Westfield, N. J.
C. Calor Mota, Mayeguez, P. R.
C. Davis Blackwelder, Richmond, Virginia.
Dr. Derso Shybekay, Minneapolis, Minn.
Willard O. Moore, Dixon, Illinois.
C. T. Baker, Atlanta, Georgia.
A. W. Johnson, Plainfield, N. J.

The Large Model Levelometer—tested and proven in war—is the accumulated results of years of engineering experience. This improved dial-type liquid level gauge is accurate, dependable and safe. Include Levelometers in your specifications to insure fuel level indication at a glance.

For information write to

THE LIQUIDOMETER CORP.
Marine Division
Skillman Ave. at 37th St., Long Island City, N. Y.

THREAD AND GASKET SEALING COMPOUND

The development of a general-purpose thread and gasket sealing compound is announced. This new organic product produces a high efficiency seal which is proof against air, water, steam, gas, gasoline, oil, hydraulic fluids, and the aromatics. Thorough testing has shown virtual insolubility in gasoline, kerosene, Stoddard solvent, benzene, xylene, carbon disulfide, the ketones, acetones and the various aromatic aviation fuels.

The new product is a paste of uniform consistency, containing no free metallic particles which might set up corrosion due to galvanic action, or other additives subject to washing out. The compound flows smoothly to form ribbon gaskets, and blends readily with cut gasket material.

Easy to use, the new compound possesses good anti-seize characteristics which aid in the assembly of threaded fittings. Solubility in alcohol and carbon tetra-chloride simplifies any clean-up which might be necessary. Disassembly and rearrangement of work on which the new compound has been used is easier, too, as the seal breaks cleanly with the application of minimum force. Exhaustive and rigorous testing shows this sealing compound to be 100% effective under severe conditions of vibration, and at temperatures above 300° F. It is available in tubes and containers ranging from 8 oz. to 5 gallons.

ENCLOSED SELF-TIMING INTERRUPTER

This new Self-Timing Interrupter unit is comprised of a glass-enclosed thermal element of the hot-wire type, a small power relay and a resistor (when required) to properly apportion the flow of current between the thermal element and the relay coil.

The device can be supplied with a fixed, predetermined rate of interruption or with an external variable adjustment. The fixed unit can be supplied in either open frame construction or in plug-in metal enclosures—dust cover or hermetically sealed—while the adjustable unit is available in plug-in dust cover enclosures only.

These interrupters can be supplied to meet a wide range of applications and can be varied to meet unusual requirements.

What's New For Engineers

Requests for further information concerning any item mentioned under this heading will be promptly referred to the manufacturer. It would be appreciated if inquiries be addressed on professional or company letterhead.

Send Inquiries Direct to American Engineer, #6 Church Street, New York, N. Y.

CATALOG ON VENTILATING EQUIPMENT

This new 36-page, 2-color publication is a word and picture story of what a consulting engineer saw as he made a tour of a large plant devoted to the manufacture of ventilating equipment.

Starting out with manufacture of motors with special characteristics for ventilating equipment duty, several pages picture the operations performed on the firm's motors. A stop is made in the centrifugal fan department where both all-steel and fans with cast iron sides are in progress. Here, in addition to showing construction and testing views, pictures of special features such as patented variable air controller and "floated drive" are included.

Propeller Fans with self-cooled motors are shown before and during assembly along a block long continuous conveyor system. Closely adjoining are photographs taken of vaneaxial fan construction. Two pages of pictures show the manufacture and assembly of unit heaters.

The book ends up with a glowing promise for the future based upon new research facilities, improved equipment and "know-how" gathered over a period of forty years of manufacturing experience.

Copies of the new book are available without charge. While it is not intended as a substitute for an actual trip through the plant, it is the next best thing. Men in the business of specifying, designing, purchasing, or installing ventilating or heating systems, who have had the opportunity of reviewing the new publication state that it is an "eye-opener" and definitely of help to them in their work.

For further information address American Engineer, reference No. 481.

MATERIAL-HANDLING HANDBOOK

This 56-page Material-handling Handbook of the Electric Industrial Truck Association has just been published.

The book is profusely illustrated with photographs and graphs bearing on the economics and practical carrying through of an efficient moving and storage system for handling materials. The four sections of text deal with the place of material handling in industrial management, a complete description of truck handling systems and their comparative costs, direct and indirect, methods for organizing a material handling system, a discussion of battery capacities,, coupled with an appendix dealing with floor loading, protection against fires and explosions and auxiliary equipment.

For further information address American Engineer, reference No. 482.

SAFETY EQUIPMENT

A new, complete 178-page catalog describing and illustrating an extensive line of Safety Equipment for industrial application, including many new products, has just been issued.

A 6-page introductory section describes and illustrates the manufacturer's complete research laboratories and plant facilities.

The catalog is published in two sizes: the regular edition which measures 8½" X 11" and a new, handy, pocketsize edition measuring 5" X 6½" containing the same material and the same number of pages as the large edition, but in miniature size.

When requesting this catalog, please be sure to state which size you prefer —the "Regular" or the "Pocket."

For further information address American Engineer, reference No. 483.

INFLUENCE OF GROUND-WATER LEVEL ON TURBINE WELL PUMP PERFORMANCE

This is a four page reprint of an article on the influence of ground-water level on turbine well pump performance written by the Chief Engineer of the Vertical Turbine Pump Division of one of the country's largest pump manufacturing companies. It contains a wealth of information of vital interest to users and prospective users of this type of pump.

The author explains the loss in output caused by receding level of underground water, and he illustrates the remedy for such a condition by means of a typical example. Details of a simple water-level measuring device are supplied.

For further information address American Engineer, reference No. 484.

Now—CITY PLANNING that meets modern needs for beauty, utility and growth

Now . . . a step-by-step program for city planning — showing what must be done, and how to do it

How much space, time and money is necessary for building more orderly cities, more convenient cities, for eradicating slum sections and making offices, factories and homes better to work and live in? This book offers a completely realistic survey of all the problems along the way—economics, politics, administration, finance and design—and outlines a practical, step-by-step program for solving them. Read how your city can be improved, how you may share in this amazingly sound plan.

Just Published

NEW CITIES FOR OLD

City Building in Terms of Space, Time and Money

By LOUIS JUSTEMENT
Architect, Washington, D. C.

232 pages, 7 x 10, 69 illustrations, $4.50

Will city planning work? This author leaves little doubt—showing how the many problems involved can be solved to integrate the responsibilities of economists, public officials, realtors, architects, builders, bankers, lawyers, labor leaders, and politicians. Read how city planning and rebuilding can coordinate the needs of urban redevelopment with the larger needs of the national economy—how it can provide a suitable and inspiring means of utilizing our boundless productive capacity.

Full of energetic ideas with plenty of hard thinking to back them up, this book shows—

—how we can realize all the advantages of genuine city planning while providing full scope for private enterprise and individual creative ability

—how we can create a consistent demand for new housing, maintaining a high level of production over an extennded period of years, without huge public expenditures

—how we can reduce building costs, at the same time maintaining high standards for materials

—how the program should be financed, from a careful consideration of possible methods

How would city planning function in your city—to locate factories and office buildings where they are most effective, provide shopping districts with plenty of parking space, replace "poor" sections with good-looking housing? Find out just what type of city planning is aimed at; read and see described with maps and photographs how a particular American city could be improved, with a more convenient traffic system, with public buildings, housing and shopping facilities designed for better living.

Can a planning program be carried out effectively without graft and corruption in the ranks of the higher-ups? How will business react—will home-owners give the program the go signal? Find the answers to these and many other practical considerations in this amazingly realistic book.

Send for a copy 10 days on approval

McGraw-Hill Book Co., Inc., 330 W. 42 St., New York 18
Send me Justement's NEW CITIES FOR OLD for 10 days' examination on approval. In 10 days I will send $4.50, plus few cents postage, or return book postpaid. (Postage paid on cash orders.)

Name .....
Address .....
City and State .....
Company .....
Position ..... AE

PROFESSIONAL DIRECTORY

JAMES F. FOUHY
P.E. No. 7816
Attorney and Counsellor at Law
New York, Massachusetts, Federal Bars
Engineering and General Practice
Woolworth Building — New York City

WILLIAM C. KAMMERER and ASSOCIATES
CONSULTING ENGINEERS
Power Plants—Design, Supervision of Construction, Reports, Examinations, Investigations, Industrial and Public Utilities.
1900 Euclid Avenue, Cleveland 15, Ohio

D. B. STEINMAN
Consulting Engineer
BRIDGES
Design • Construction • Investigation
Reports • Strengthening Advisory Service
117 Liberty Street — NEW YORK CITY

JAS. V. CURNUTTE
CONSULTING ENGINEERS
Design & Construction

Water Supply	Sewerage
Bridges	Structures
Airports	Highways
Flood Control	Shore Protection

Investigation - Reports - Appraisals
Transit Tower, San Antonio 5, Texas

FRAZIER-SIMPLEX, INC.
436 East Beau Street
WASHINGTON, PENN.

Contracting and Consulting Engineers to the Glass and Steel Industries.

BARKER & WHEELER

Water Supply	Industrial
Sewerage	Power Systems
Sewage Disposal	Valuations
Utility and	Reports

NEW YORK CITY, 11 PARK PLACE
ALBANY, N. Y., 36 STATE ST.

L. DAVIDSON
Industrial Plants, Buildings and related structures and utilities.
Reports—Design—Construction Supervision—Research
113 W. 42nd Street, New York, N. Y.

JULIUS HARWOOD, C. E.
258 Broadway
New York
Phone COrtland 7-0630
Construction Surveys
Town Planning — Sub-Divisions

MADIGAN-HYLAND
Consulting Engineers
28-04 41st Avenue
Long Island City, New York

PARSONS, BRINCKERHOFF, HOGAN & MACDONALD
Engineers

Traffic Reports	Bridges
Valuations	Tunnels
Harbor Works	Subways
Power Developments	Foundations
Industrial Buildings	Dams
Water Supply	Sewerage

142 Maiden Lane, New York
Calle Sur 17 No. 27, Caracas, Venezuela
Edificio Suarez Costa, Bogota, Colombia

C. M. HATHAWAY *Consulting Engineer*
• PRODUCT DEVELOPMENT
• PROJECT ENGINEERING • PRODUCTION DESIGNS
• PLANNING • TOOL AND METHODS ENGINEERING
ELECTRICAL -- MECHANICAL -- ELECTRONIC
facilities for research, model work & pilot manufacturing
1315 S. CLARKSON STREET • DENVER 10, COLORADO

DE LEUW, CATHER & COMPANY
Water Supply — Sewerage
Railroads — Highways
Grade Separations—Bridges—Subways
Local Transportation
Investigations — Reports — Appraisals
Plans and Supervision of Construction
20 North Wacker Drive — Chicago

Complete Dredges

HYDRAULIC·DIPPER·CLAMSHELL

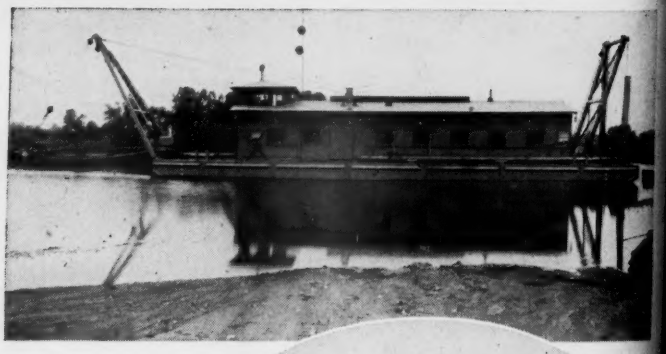
HYDRAULIC DREDGES
Sizes 8" to 15"

BOLTED SECTIONAL STEEL CONSTRUCTION

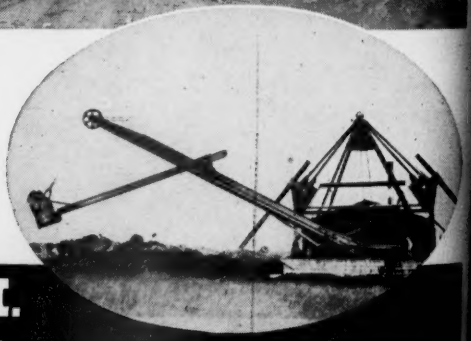
Every ASD dredge is designed as a complete, integrated unit for economical performance. Backed by 40 years of dredge building experience, these units are cutting yardage costs on many different projects—canals, harbors, drainage, sand, gravel, fills, ore recovery and other jobs.

Patented, bolted sectional steel hulls, all machinery and accessories are shipped by rail, truck or as hold cargo for assembly at site of use. May be dismantled, shipped and reassembled.

Write for catalog, photos and data sheets.
Place your order NOW for early delivery.



DIPPER and CLAMSHELL
¾ cu. yd. up



ASD
AMERICAN STEEL DREDGE CO. INC.
FORT WAYNE 1 · INDIANA · U.S.A.

ork
uela
bia
Y
eer
NS
NG
IC
ing
DO
ANY
erage
ways
ya
nis
ion
cago
LL